POPULAR PHOTOGRAPHY

HOW TO MAKE GREAT PICTURES

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PRINT & DISPLAY LIKE A PRO **P.67**

BEST GEAR 2011

The POP Awards: Our Favorite New Tools of the Year

Canon
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Rebel
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EX
SIGMA

PLUS

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LENSES

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ACCESSORIES

SILVER EFEX PRO 2

SOFTWARE

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DECEMBER 2011
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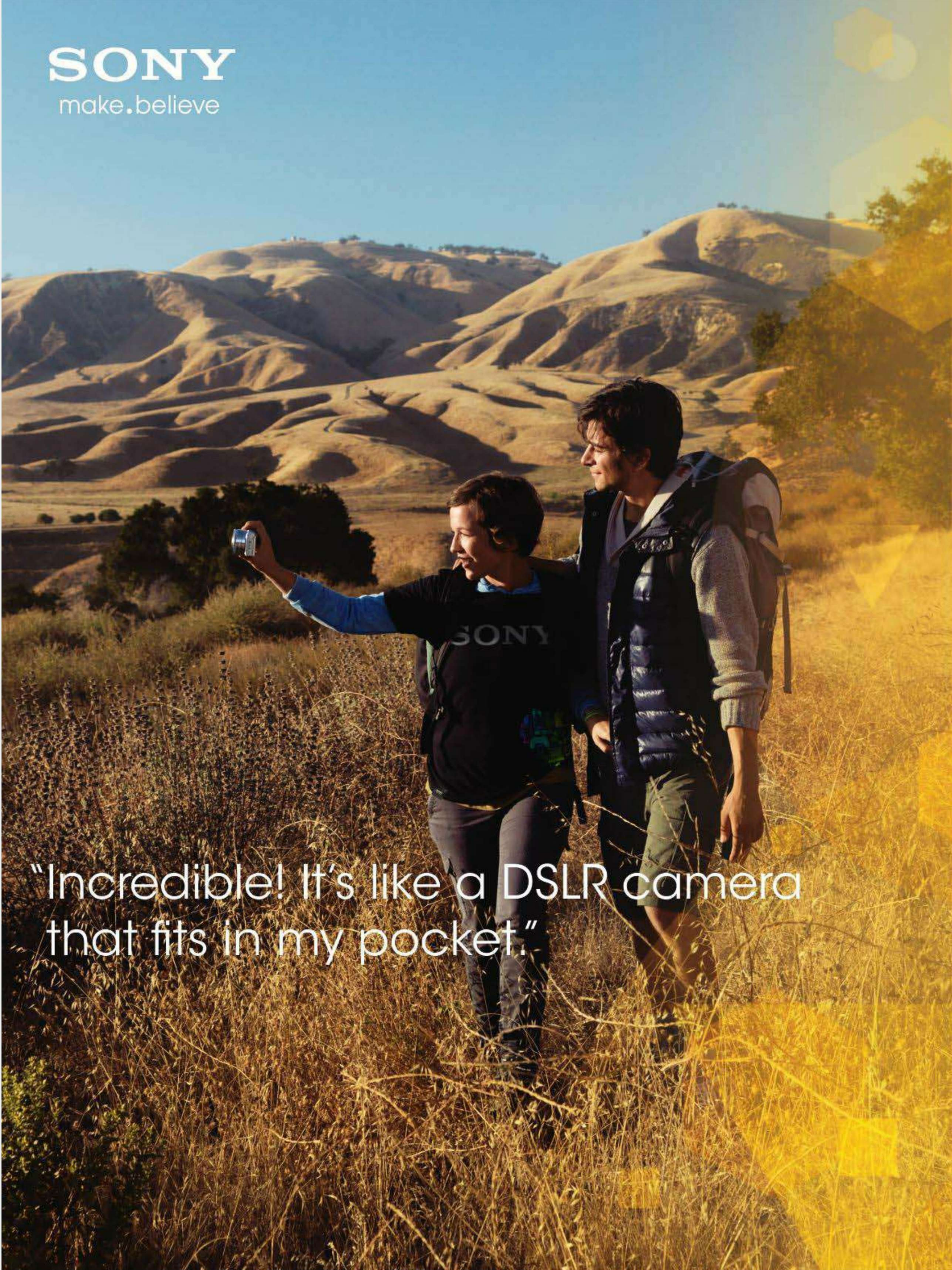
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AWARD
2011

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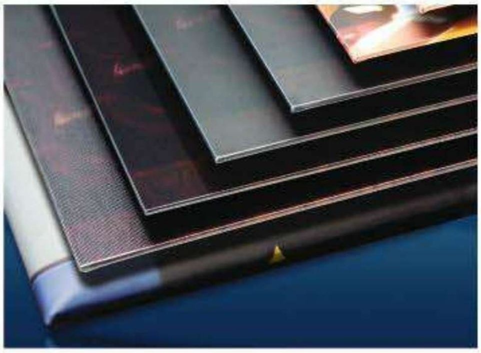

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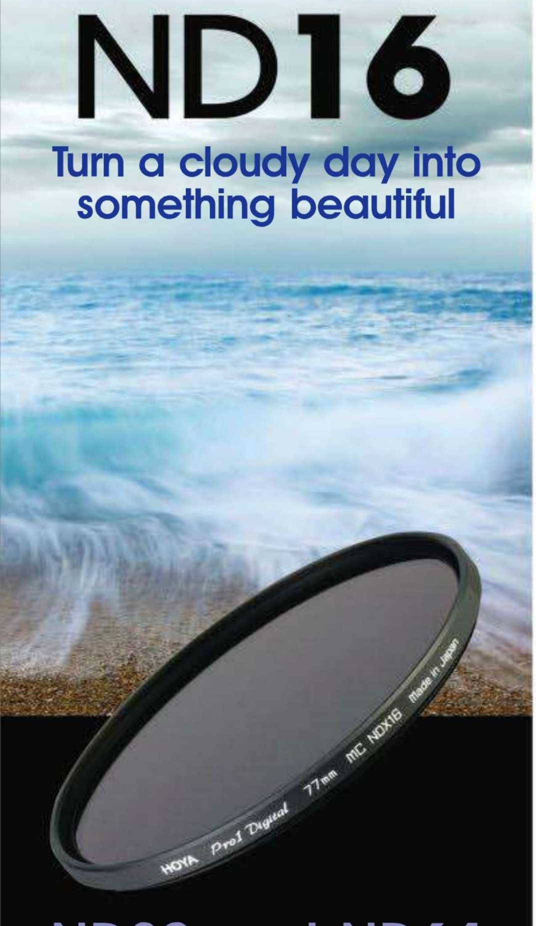
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EDITOR'S LETTER

Low Fidelity

While strolling around my neighborhood recently, my eye was caught by a window display at Urban Outfitters, a clothing-and-accessories retailer with a vintage-inspired style that's a staple for a certain crowd of teens and twenty-somethings. The window nearest the entrance, plus a good chunk of the front of the store, were given over to plastic cameras—Dianas, Holgas, and others under the Lomography brand, as well as Fujifilm's Instax instant-film line. A "deluxe" Diana kit offered an array of lenses, filters and holders, and other accessories, along with a camera and shoe-mount flash. Books celebrating photography beckoned nearby, and a tall rack holding boxes of Lomography-branded film completed the scene. (No fine-grain Kodak Portra color-negative or Fujichrome Velvia slide film here.)

It's clear that self-consciously low-fi photography has never been trendier. Some of these cameras are designed to be noticed: Lomo has a whole new line of compacts that seem to be made from sardine cans. Digital camera and imaging software designers have been riding this trend for years, with effects that mimic the style of photography such low-tech tools produce—vignetting, distortion, odd color shifts, and the like—and they just keep adding more.

What's behind this? As photographic technology has made it easier for everyone to produce clean, clear, vibrant, and sharp images, many people find inspiration in the opposite qualities: scruffiness, blur, unpredictability, even inconvenience. You have to slow down to use cameras like this. And the pictures they produce call into question the notion of what makes a "good" photo, especially when it comes to art and creative self-expression.

For a publication devoted to the notion of excellence in photography—in terms of both tools and techniques—this can be hard to celebrate. You won't see any cameras devoted to helping you take *worse* pictures in our 2011 POP Awards this month (page 53).

But sometimes we all want to loosen up and have fun. Maybe I'll pull my Polaroid pinhole camera out of the closet.

Miriam Leuchter

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HOW TO MAKE GREAT PICTURES
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24 TOP-RATED PICKS
CAMERAS
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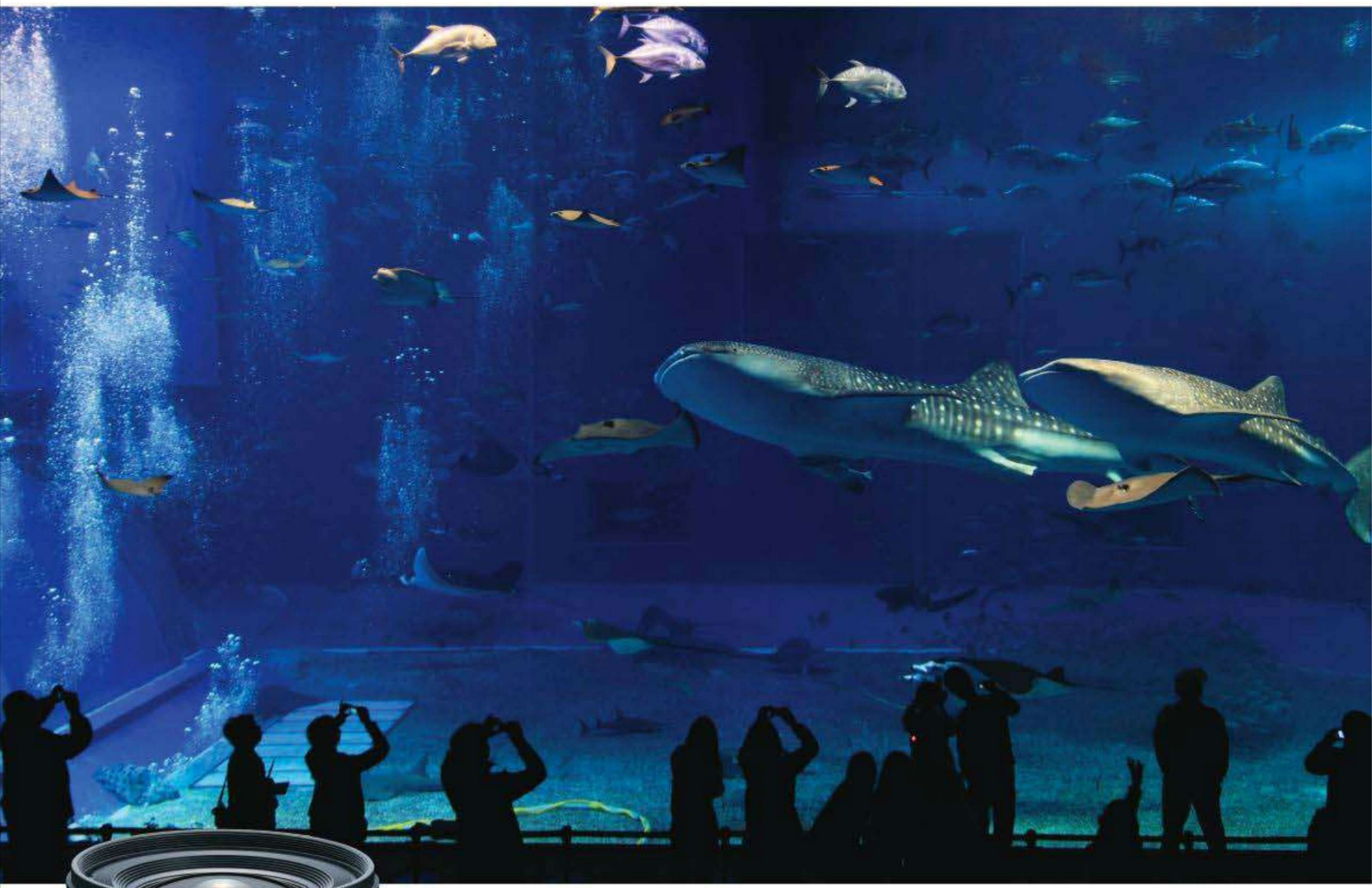
LIGHTS
ACCESSORIES
SOFTWARE
& MORE

NEWSSTAND AND SUBSCRIBER
With our POP Awards for Photography's Outstanding Products, the editors pick the best cameras, lenses, and other tools that we tried and tested in the lab and in the field in 2011. Satoshi shot the big images of Canon's EOS Rebel T3i, Manfrotto's pan/tilt/ballhead, and Sigma's 85mm f/1.4 lens; Sam Kaplan shot the story on page 53.

Tokina

SHOOT SPECTACULAR



Tokina
AT-X PRO
SD 17-35 F4 (IF) FX
35 28 24 21 17

AT-X 17-35 F4 PRO FX

AF 17-35mm f/4.0

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Photograph by: *Ryosuke Takahashi*
Canon EOS 5D Mark II and
Tokina AT-X 17-35 F4 PRO FX lens

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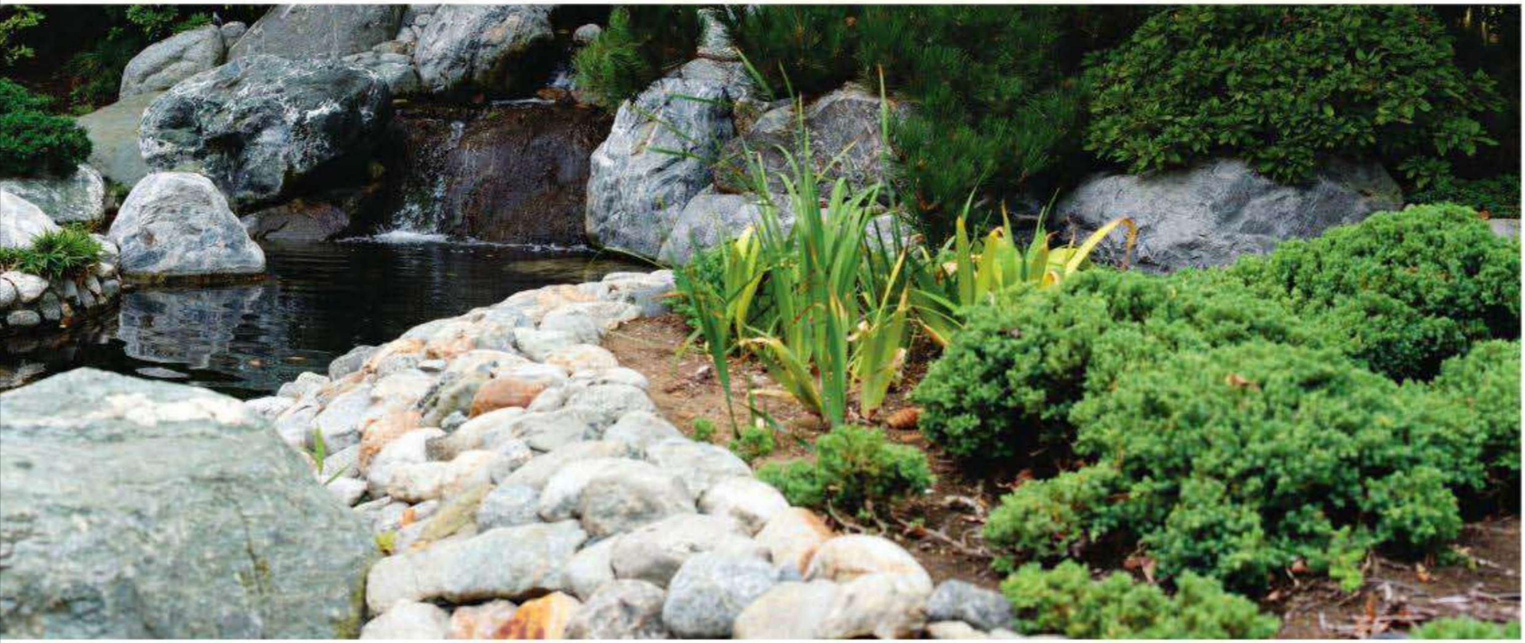
PHILIP RYAN



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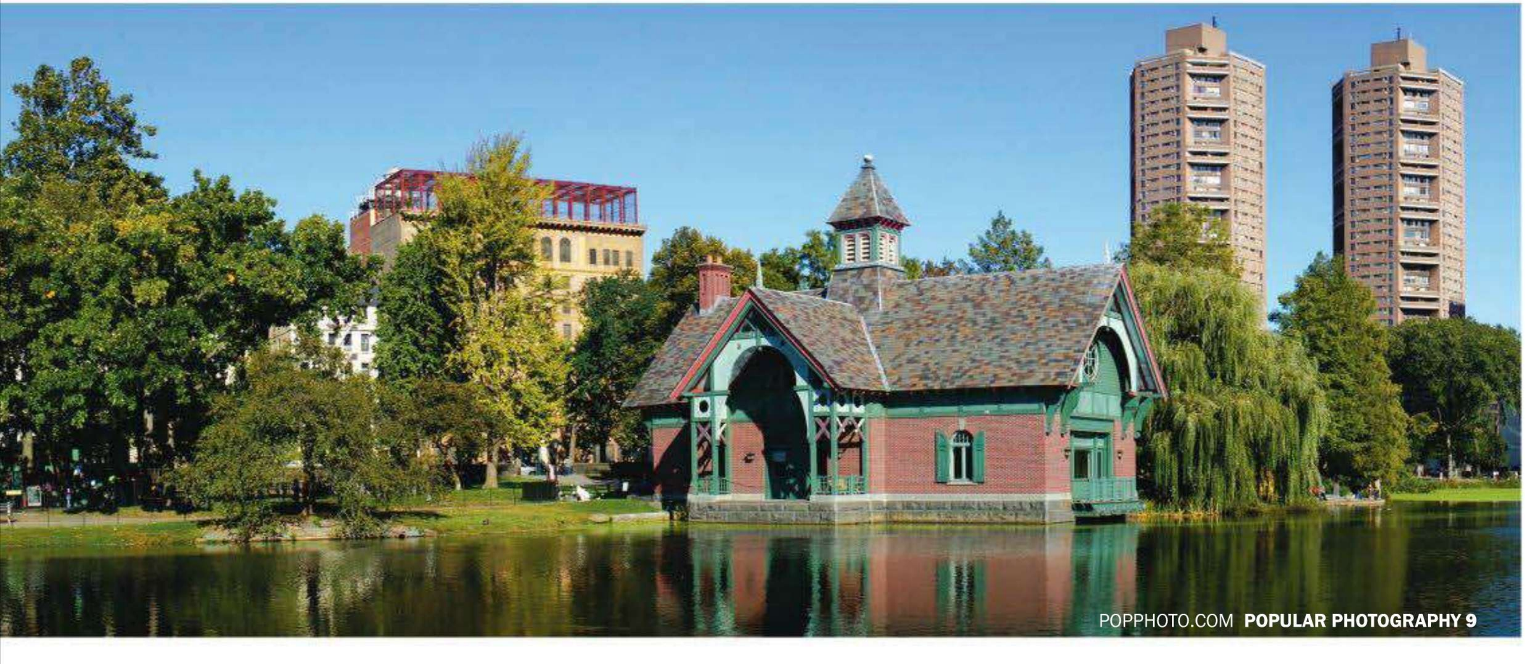
POINT, PRESS, PANORAMA

Technical Editor Philip Ryan captured all three of these panoramas using the Sony NEX-7's Sweep Panorama shooting mode. While not always perfect—note the multiple tails on the koi near the middle of the top image—it makes extremely wide images like these easy to create and eliminates the need for special software or a computer. See our full test of the Sony NEX-7 on page 79.



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Canon
EOS-1D X

THE HOTTEST NEW STUFF AND THE TECHNOLOGY TRENDS BEHIND IT

WE WANT THIS

WHAT IS IT?

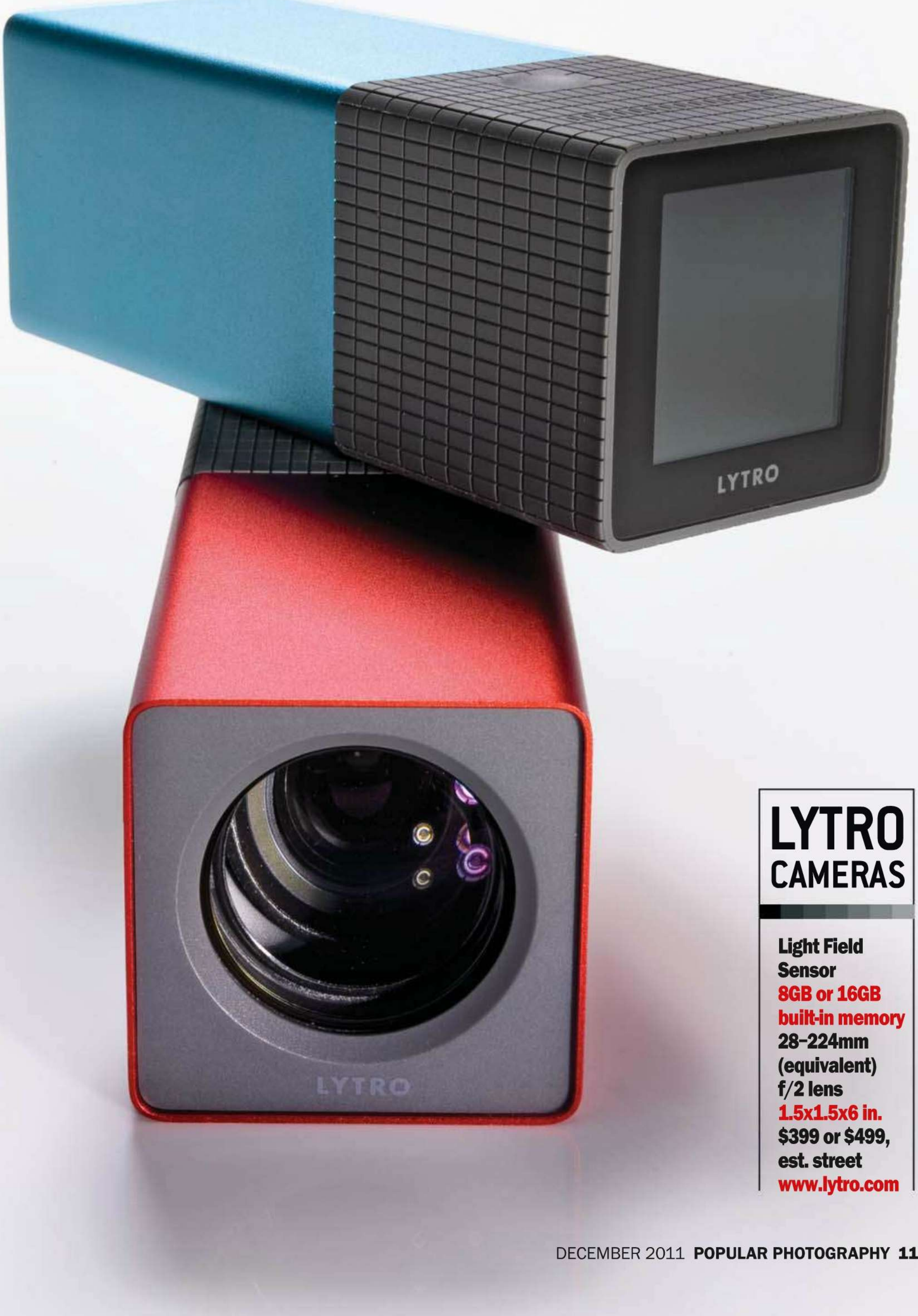
Lytro's revolutionary point-and-shoot

YOU'VE NEVER seen cameras like these before. Lytro, a Silicon Valley startup, uses light field (or plenoptic) technology to let you manipulate your focal point and depth of field *after* you shoot.

How? An 8X optical zoom lens funnels light to an image sensor that's overlaid with a special array of microlenses, gathering a tremendous amount of picture data. It outputs a new image file type, .lfp (for light field picture), adjustable using Lytro's Mac-only software.Viewers can play with focus on images uploaded to Lytro.com. (You can also export JPEGs, but lose the interactivity.) File sizes are around 12MB, though the effective image resolution may be far smaller.

The Lytro's pressure-sensitive collar offers some controls; you reach others through the touch-screen LCD on the back.

This minimalist camera, due in early 2012, could reshape photography—or just be a very cool toy.



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DEEP DARK

Canon's new pro printer offers blacker blacks

IN A FIRST for Canon, its new Pixma Pro-1 houses its 12 ink tanks in the front of the printer instead of on the printer head assembly. By removing them from the head, Canon was able to make bigger tanks without slowing the printer down. The result? Tanks that hold 36ml—157 percent more ink than the Pixma Pro9500 Mark II's 14ml tanks—and can output bordered 13x19-inch prints in a speedy 4 minutes, 20 seconds in standard print mode (one step down from the top quality).

The print head's 12,288 nozzles help boost print speed, too. It uses pigment-based inks for long-lasting prints, though Canon's commissioned Wilhelm Imaging Research print-permanence tests weren't finished at press time. The prints we saw from a preproduction model showed extremely dark blacks and lots of detail in shadows and highlights.

Black-and-white prints utilize three levels of gray ink, in addition to the matte and photo blacks that the printer automatically switches between (depending on the paper). A Chroma optimizer in tank 12 adds shimmer to glossy prints.

Intended for advanced photographers, Canon's new Pixma Pro-1 will come with pro-level technical support.

Canon Pixma Pro-1
$1,000, estimated street
www.usa.canon.com

SCUBA SHOOTING

This underwater camera is dive-ready

WHILE UNDERWATER housings can go deeper than your average waterproof camera, they can also be bulky and sometimes cost more than the camera they hold. But SeaLife's new DC1400 Underwater Camera fits a slim, 14MP point-and-shoot with a 5X optical zoom into a deep-diving custom housing for $500. (Want to shoot on land? Just pop the camera out.)

Five "piano key" buttons on the outer shell help switch between six underwater scene modes. Optional lighting rigs assist with shooting 720p video or 14MP stills, and the padded wrist strap helps keep your camera from becoming one with the reef.

SeaLife DC1400
$500, street
www.sealife-cameras.com

SeaLife
SeaLife
5x Optical Zoom
200 ft
60 m

NEWS FEED

> Pocket-Wizard's new G wiz trunk bag holds all your MiniTT1 and FlexTT5 radios in a zippered case with movable, padded dividers.

> *The British Journal of Photography* is giving away the first quarterly iPad edition of the historic monthly for free, exclusively through iTunes.

INSIDE TECH

Water-Tight

Depth-tested down to 200 feet, the DC1400 is built for scuba diving photography, not just casual snorkeling. SeaLife bills the battery as lasting for an entire "2-tank dive," or about 2 hours. A silicone O-ring, marine-grade stainless steel body, and overmolded polycarbonate outer shell help keep the sea at bay while you're shooting down below.

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SLEEK STORAGE

Iomega's latest hard drive is made for the Mac

MAC USERS have plenty of reasons for going with Apple, and one of those is frequently the computers' sleek design. To serve that audience, Iomega has introduced its Mac Companion drive in 2- and 3-terabyte versions. The trapezoid-shaped external hard drive fits perfectly on the base of an iMac or Apple Display, and the drive has silver and black finishes to coordinate with Mac hardware.

It's not all looks, though. iMac users, who have limited port connections on their machines, will appreciate the two FireWire 800 and three USB 2.0 ports, including a high-powered one on the side for charging an iPad, iPod, or iPhone. The front lights serve as a capacity gauge, and Iomega includes free backup software.

Iomega Mac Companion Hard Drive **$198 or $275 (2TB or 3TB), street** go.iomega.com

LIGHT HEAD

Compact and affordable ballheads in three sizes

WHEN LUGGING a full camera rig, you want to save weight where you can. Hence the new line of BHS tripod heads from Induro. The three BHS aluminum-alloy and magnesium ballheads weigh between 8 and 12.8 ounces, but Induro claims they are sturdy enough to carry loads of between 10.3 and 18.7 pounds—the largest of which should be able to support even a medium-format camera and lens. Perks for each include a built-in spirit level, single-action adjustment for both up/down and rotational movements, and a dual-locking, spring-action quick-release system (snap-in plate included) that helps ensure your camera won't drop, even when the quick-release cleat is open.

Induro BHS Tripod Heads

$52–$76, street, depending on size

www.indurogear.com

INDURO
BHS2

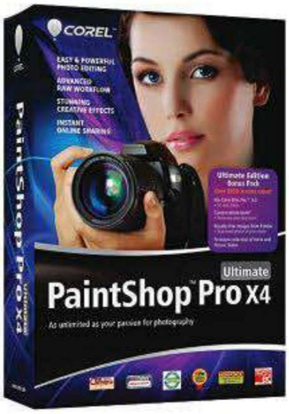
NEWS FEED

> Canon now joins HP as the only manufacturers of printers compatible with Apple's AirPrint protocol, which allows wireless printing from iOS devices on a Wi-Fi network.

> Lensbaby's Movie Maker's kit comes with everything you need to add optic flair to your videos, packaged in a hardy Pelican case.

> Instagram 2.0—the newest version of the popular photo-sharing/editing app—now features live filters, allowing you to view effects as you shoot. But some filters from 1.0, like the gritty, black-and-white Gotham, didn't make the cut.

> Panasonic's Lumix Phone 101p packs a 4-inch QHD LCD screen, 13.2MP CMOS sensor, and a dual-core processor into a 9.8mm-thick phone. Too bad it's currently sold only in Japan.



New Software

Corel PaintShop Pro X4

In addition to a name change that drops the "Photo" and goes back to its roots as "PaintShop Pro," version X4 (www.corel.com; $100, direct) of this organizer/editor has a beautifully redesigned, workflow-oriented interface and more than 75 new features. Express Lab is upgraded and renamed Adjust mode, which makes it easier to do quality fixes to images, quickly. There's a powerful, rebuilt HDR creator, a new selective focus tool, and easier sharing, too.

THE LOWDOWN

ADOBE GETS CLOUDY

Everyone says that cloud storage is the future. We agree; apparently, so does Adobe. The company recently introduced Adobe Carousel, an app that lets users edit images on iPads, iPhones, and Mac computers (Windows in 2012) using Lightroom's tech. Syncing happens automatically, so no matter where you edit, you'll be able to see and share your photos.

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The new compact FUJIFILM X10 was inspired by the styling and technological innovations of the FUJIFILM X100. No matter the lighting conditions, the large 2/3" 12 MP, EXR CMOS sensor optimizes the shooting setting. The fast EXR processor enables high-speed continuous shooting. And the X10 produces superb image quality through the combination of the EXR CMOS sensor and the bright, high-definition FUJINON F2.0 lens (Super EBC coated, wide-angle to F2.8 telephoto, 4x manual zoom 28–112mm).

X10

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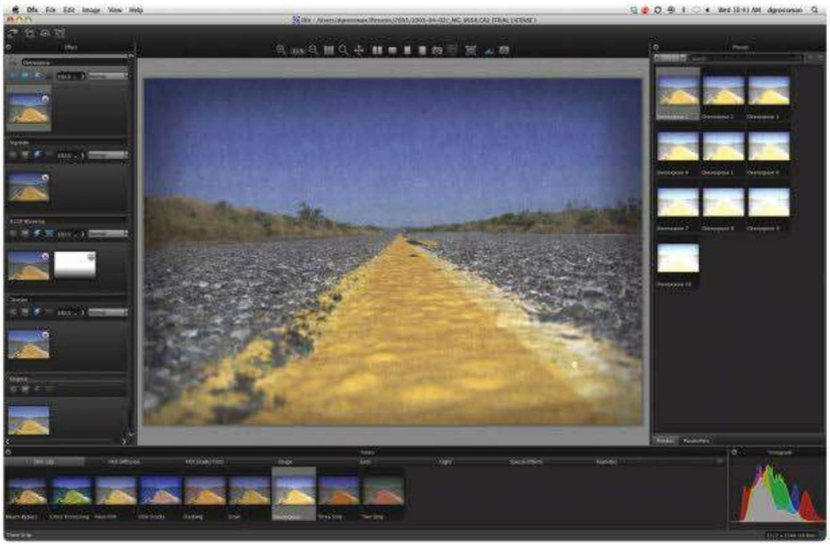
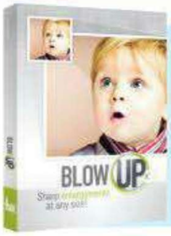


PLUG-INS

EDITING AN IMAGE in Adobe Photoshop isn't always the best way to get a great result. Plug-ins, especially those that work not only with Photoshop but also with Apple Aperture and Adobe Lightroom, can help transform your image faster. Here are four cool new ones.

TIFFEN
DFX
TIFFEN
DFX 3.0
FAST, INTUITIVE, EASY TO USE

Tiffen DFX V3 **$230** Also available as a standalone, this plug-in is fabulous for photographers who are accustomed to using Tiffen's real-world filters to enhance their photos. The sophisticated interface lets you crop, straighten, and add masks, and even includes a RAW converter. Each filter is added on its own layer for extra flexibility.



Alien Skin Blow Up 3 **$200** Making an image slightly bigger in Photoshop is no problem, but making mega enlargements is a different story; Blow Up can make pictures huge and maintain far greater sharpness and quality. Version 3 now works with Lightroom, has a simpler interface for quick size changes and an even better algorithm.

COLOR EFEX PRO 4

Nik Color Efex Pro 4 **$200** The Complete Edition of this image-enhancing plug-in contains 55 total filters. Nik's U Point technology allows you to add and remove effects from the zones you target, and everything you do is now recorded in the History Browser, so you can revert to an earlier state. You can even add image borders, too.

onOne
Perfect Portrait 1

onOne Perfect Portrait 1 **$100** This all-new plug-in (which can also operate as a standalone) makes portrait retouching faster and easier. Face detection hones in on your subjects and fixes skin automatically, while letting you dial in the edits you want on the eyes and the mouth. The emphasis is on subtlety—freckles, for example, remain.

NEWS FEED

> RedRock Micro has released a Micro Four Thirds adapter for Canon EF lenses. It provides the power and electronics to control Canon lenses from Olympus and Panasonic ILCs via a control touchpad.

> Fujifilm plans to unveil its entry into the ILC market at CES 2012 in January. Will it be a retro-cool rangefinder like the FinePix X100, but with a choice of lenses? Check PopPhoto.com for updates.

> XEquals' blueSLR lets you remotely fire and geocode 12 Nikon camera models via Bluetooth using your iOS, Android, or Blackberry.

> If smudgy fingerprints plague your iPad, Lenspen's Sidekick can remove them quickly.

> Got lots of hot-shoe flashes? Attach up to four and add an umbrella or softbox with Lastolite's Ezybox Quad flash bracket.

TOOLBOX

HUE FIXERS

Rogue Gel Kits give you more color control

FLASH SHOOTERS who want to balance fore- and background color temps—or simply add an accent tone—have a new option: ExpoImaging Rogue Gel kits (www.expoimaging.com). Available for use with the Rogue FlashBender and Rogue Grid attachments, the Rogue Gel kits ($30 and $28, street, respectively) include one diffusion, five color-correcting, and 14 color-effect gels. These acetate gels, which come in a folding storage pouch with quick reference dividers, are sourced from Lee Filters and imprinted with ID numbers and exposure correction factors, in stops.

60%

of American consumers print photos mostly at home.

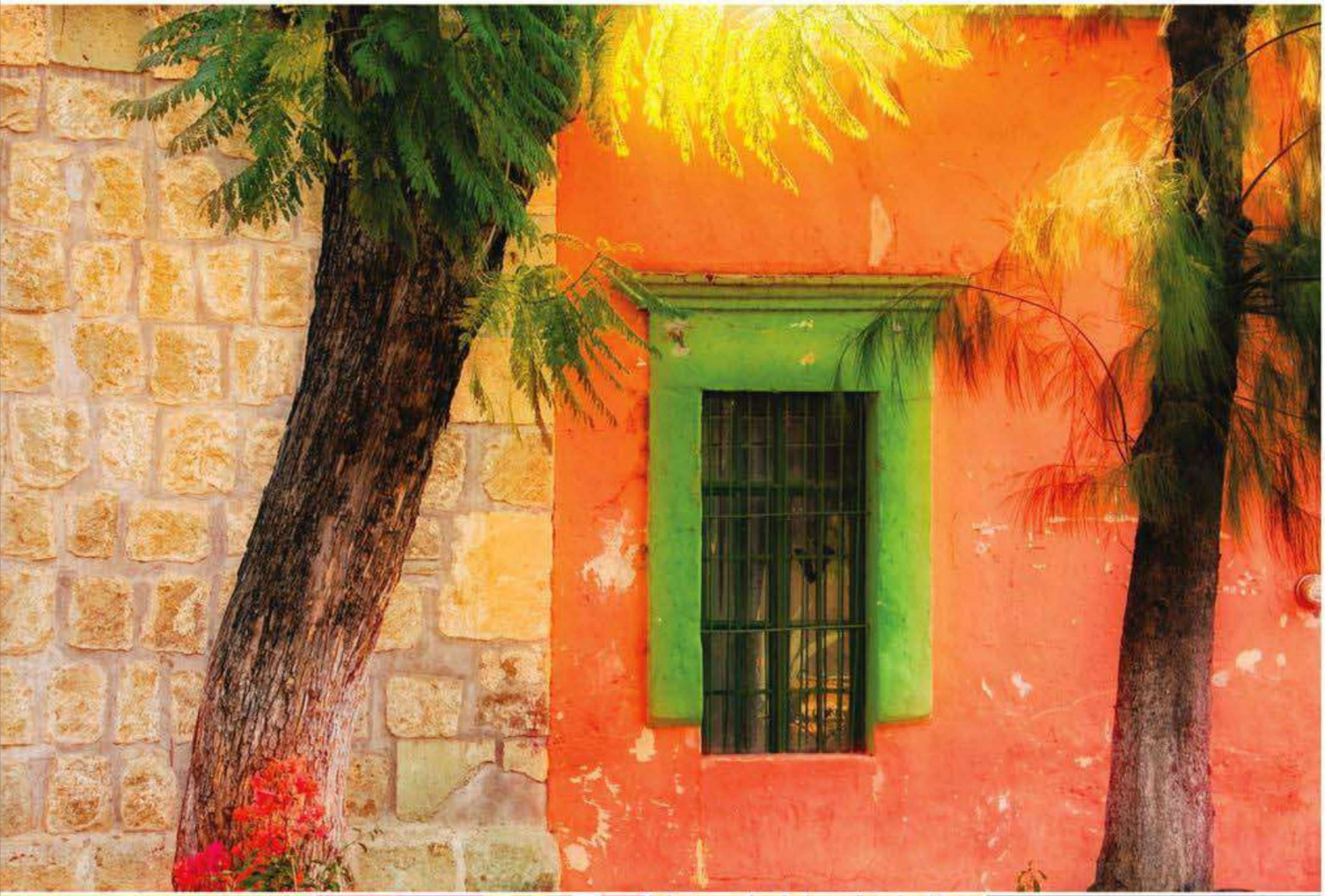
7%

of American consumers most often order their prints online to be delivered by mail.

SOURCE: InfoTrends, 2011

SIXTIETH ANNIVERSARY

One lens. Every moment.



Read the story behind these photos @ ***www.tamron-usa.com/RichardMartin***

Astonishingly compact and lightweight, this 15X all-in-one zoom features Tamron VC (Vibration Compensation) to eliminate blur caused by camera shake, along with a fast, quiet PZD (Piezo Drive) autofocus mechanism. Reveal more of your camera's potential and capture the moment with outstanding clarity and sharpness with Tamron's all-in-one zoom.

NEW 18-270mm F/3.5–6.3 Di II VC PZD

(Model B008) Compatible mounts for Canon, Nikon and Sony* DSLRs. Includes flower-shaped lens hood.

* Sony digital SLR camera bodies rely on the camera's image stabilization function. For that reason, the VC (Vibration Compensation) image stabilization function is omitted from lenses manufactured with Sony DSLR mount

* This lens is designed for use only with APS-C sensor digital SLR cameras.

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ALL IN ONE 1D

With its forthcoming 1D X, Canon remakes its pro line

IF YOU'RE looking for more pixels in Canon's newest flagship DSLR, avert your eyes from the EOS-1D X, due out in March 2012. With its full-frame sensor, the 1D X replaces both the 1Ds Mark III and the 1D Mark IV, eliminating the APS-H sized sensor from the Canon line. While it boasts only 18 million effective pixels, that fact doesn't bother us at all.

Canon's new flagship DSLR boasts a slew of assignable buttons, a rugged build, 12-fps bursts, and sensitivity reaching an equivalent of ISO 204,800.

By keeping the pixel count down, matching the sensor with a pair of Digic 5+ image processors and with the help of a hefty buffer, the 1D X offers full burst capability at up to 12 frames per second, or up to 14 fps when shooting JPEG-only with the mirror and AF locked.

Fewer pixels also means larger pixels—another plus. The 1D X's are 6.95 microns in size, 22 percent bigger than the 1D Mark IV's. With this increase comes a top standard ISO of 51,200, expandable essentially to ISO 204,800; minimum sensitivity is ISO 50, down from ISO 100.

As if that weren't enough, Canon has completely revamped the rest of the camera's features. This includes a new 100,000-pixel RGB metering sensor powering a 252-zone system that works together with a new 61-point (41 cross-type) AF system to track subjects by shape and/or color. The 1D X's new interface makes it easier to manage how the AF functions. And it sports many customizable buttons, including four near the shutter release.

The camera body itself retains pro-level weather sealing, but it does away with the SD card slot in favor of two CF slots. The LCD is now 3.2 inches with 1.04 million dots. The shutter uses lightweight carbon-fiber blades that increase its life to 400,000 cycles (up from the 1D Mark IV's 300,000). The body also includes a Gigabit Ethernet port for faster tethered shooting.

Video reaches 1920x1080p30 or 1280x720p60 saved as H.264 .mov files, but you can also choose either low-compression ALL-I or high-compression IPB.

We can't wait to test this thing.

—Philip Ryan

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When your gear feels right, your work goes more smoothly. This idea inspired the design of our **Pro Messenger AW series**. Its durable, yet soft exterior is reminiscent of classic canvas, but it's actually a modern performance fabric. It's built to fit pro-sized camera gear in configurations you've told us work best. And it has an innovative flap that effortlessly folds in half to quiet your moves and quicken your pace.

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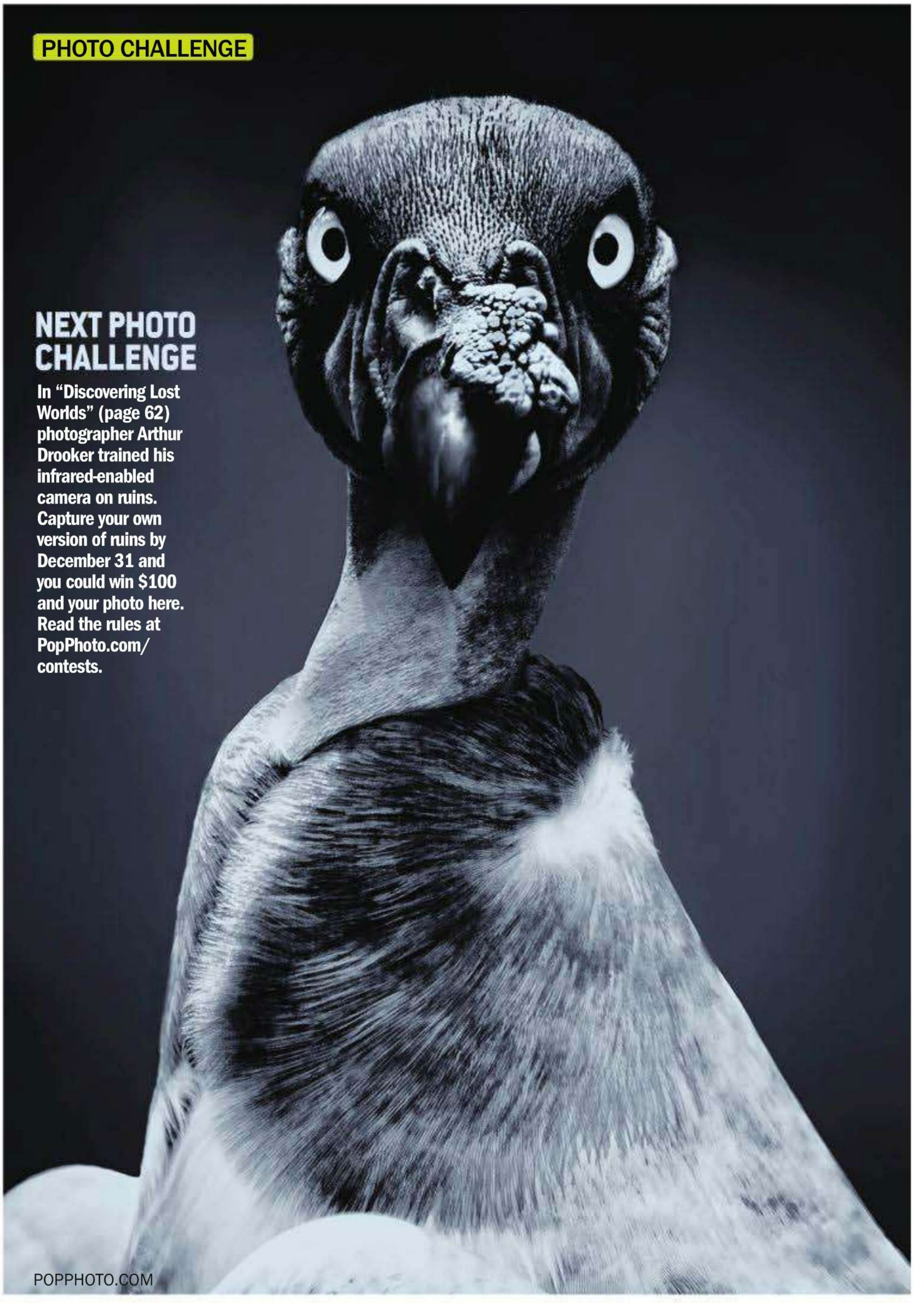

HEIDI HOPWOOD

NEXT PHOTO CHALLENGE

In "Discovering Lost Worlds" (page 62) photographer Arthur Drooker trained his infrared-enabled camera on ruins. Capture your own version of ruins by December 31 and you could win $100 and your photo here. Read the rules at PopPhoto.com/contests.

REGAL MODEL

A colorful king vulture poses in black-and-white

HEIDI HOPWOOD, 32, works in software support for Ford Motor Company, and "almost 90 percent" of her photography is of automobiles and infrared landscapes. But once a month, the Melbourne, FL, native takes a short drive up I-95 with her camera gear to the Brevard Zoo to photograph its residents.

Queenie, a king vulture, is one of her favorites. "She loves the flash," Hopwood says. "I was popping a fill flash, and every time I did, she would flip her head—her wattle is flipping from picture to picture—and pose."

Hopwood originally shot in color to capture Queenie's vibrant plumage. But after converting her image to black-and-white, she noticed all of the detailed lines that had been obscured by the bright colors.

But it's the vulture's personality that shines through. "They're hand-raised and very charismatic," says Hopwood. "They kind of act like puppy dogs. They'll look at you and follow you." *—Matthew Ismael Ruiz*

Aerial Shooter

Documenting work sites and landscapes from high above

South Dakota-based pilot and aerial photographer Dave Tunge, 65, uses his decades of flight experience to give his clients a top-down perspective. Check out his work at PopPhoto.com/Tunge and www.dakotaaerials.com.

Why aerial photography? I've been involved in aviation for more than 40 years, from flight instruction to charter to corporate flying. I always carried a camera, mostly a point-and-shoot, and took pictures from the air. When I was 60, I decided to get quality equipment and start working on it more seriously to make it into a paying hobby, and now it's turned into a business.

How did you build your business? It was difficult at first to get things going, but the first job I got in Sioux City, Iowa, was referred to me by another Professional Aerial Photographers Association member. While I was there, I shot a number of images of colleges and businesses on spec—whatever I thought might sell. I printed some photos and sold almost all of them. It was one of the most profitable trips I've ever made. I've donated some prints to auctions, which helps me get the word out.

What subjects do you shoot? I do construction progress, going up every month to document the progress of projects. I also do a lot of residential and commercial development work and images of company headquarters, plus some art prints for lobbies of corporate buildings. And I also shoot for educational and government agencies, universities, architects, and legal work for things like boundary disputes.

Tell us about your plane. I fly a Piper PA-18 Super Cub, which is one of the best platforms for aerial photography, because it's capable of very slow flight and the door is like a clamshell, so it opens the whole side of the airplane up for unobstructed views. I work alone—I fly and shoot at the same time, which is an area of controversy among aerial photographers. But in a rural setting, flying and shooting doesn't present any problem—I have enough experience that flying is second nature, and when I look at the subject and frame it out of the open door, it takes less time and distraction than it does to look at a work chart.

What time of day do you usually fly? I like to shoot early morning and evening for the prettiest shots. But for construction progress, for example, they're looking at the photos more for information than for aesthetics, and midday and a little overcast works the best to eliminate the shadows so nothing covers up any of the worksite.

What gear do you use? The Canon EOS-1Ds Mark II is still one of my favorite cameras; I also use an EOS 5D Mark II, which is capable of really nice enlargements. I use two lenses: 24–70mm and 70–200mm f/2.8L.

Any tips for shooting from the air? Use a fast shutter speed, because the aircraft is moving and there may be turbulence and vibration—you want to shoot a minimum of 1/500 sec. You also don't want any part of your upper torso touching the plane: Your arms make pretty good stabilizers, but if you lean back against the seat, that vibration transfers to the camera. Shoot with a low ISO—the max is about 400—and, if possible, avoid shooting through the window to eliminate reflections or smudges.

What do you like most about what you do? Sharing shots with people. They would otherwise never get to see things like this—it is a very unique perspective.

—Interviewed by Kathleen Davis

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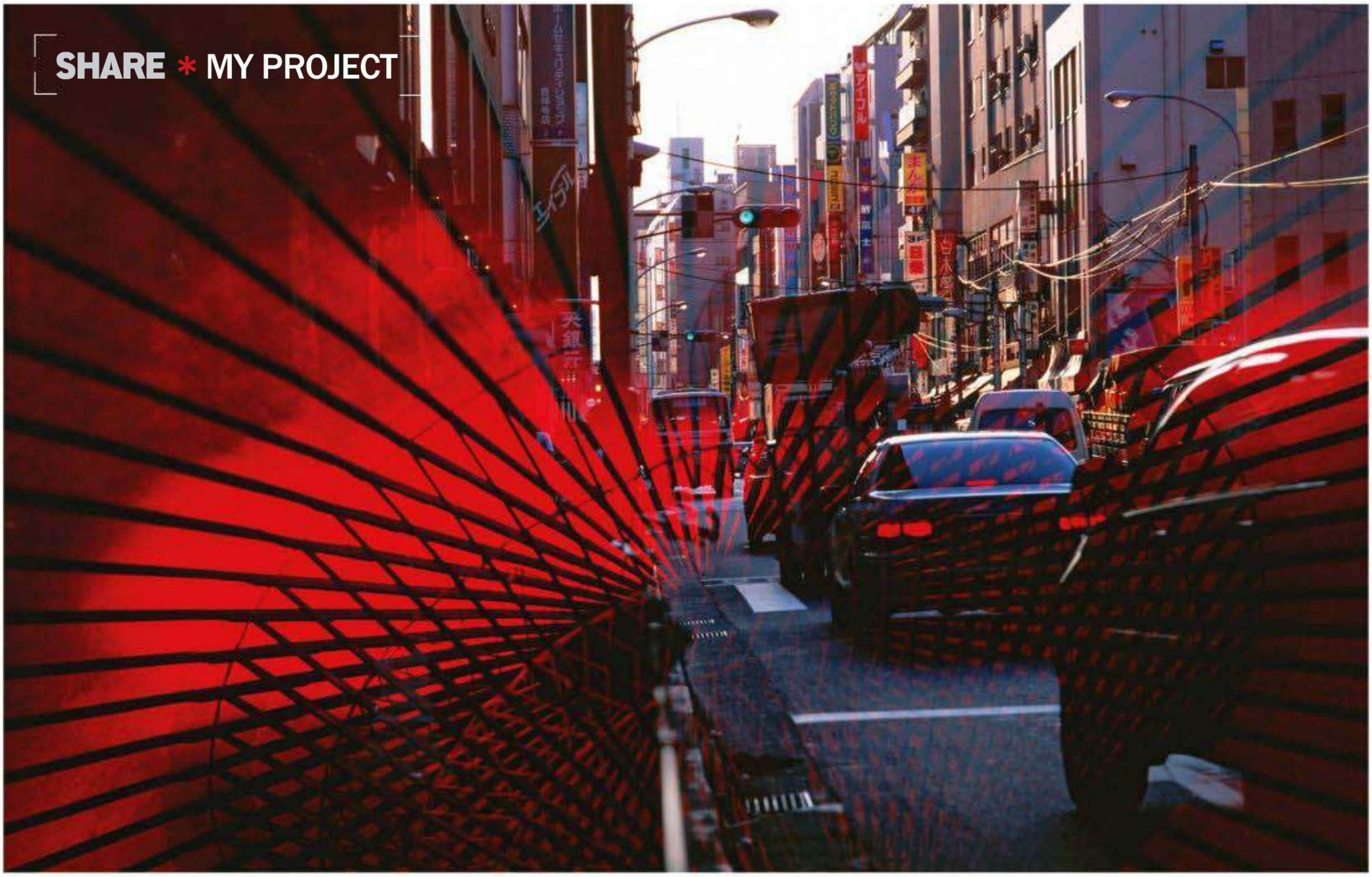
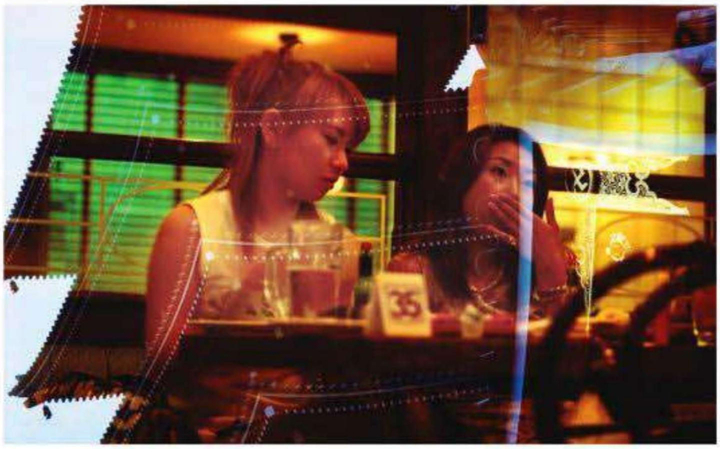
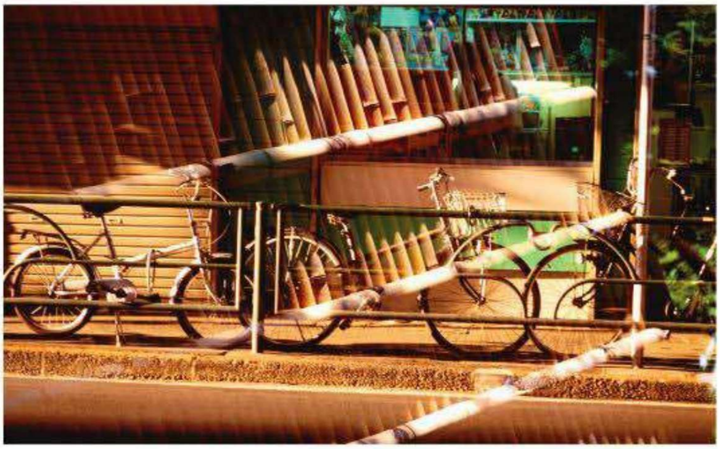
Photo by Jonathan Smith







Double Takes

Exploring Tokyo's many dimensions

THOUGH HE lives in New York, John Neitzel's photography is rooted in Japan. "I lived there for two years in high school, and it's also where I first taught myself photography," he says. "I have a personal understanding of the culture that's very different from my understanding of New York."

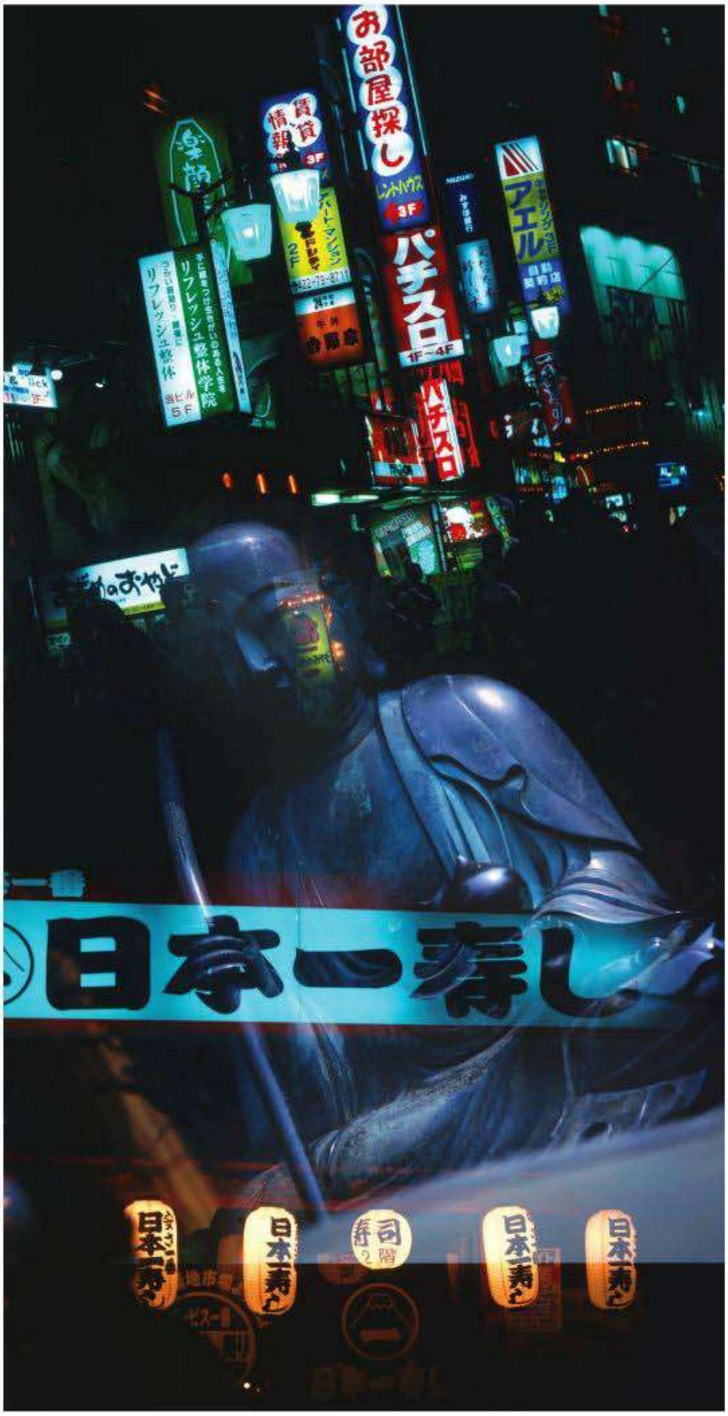
He's featured Japan as a subject many times, experimenting with different media in both personal and professional projects, ranging from 360-degree virtual tours to video. So it may seem strange that he captured these double exposures of street scenes in Tokyo on a much older medium: Fujichrome Velvia 50 rollfilm.

But Neitzel insists that was the point. "When I started this project in 2006, I was working only with digital. I was tired of sitting in front of the computer,

JOHN NEITZEL (7)

John Neitzel (johnneitzel.com) is an award-winning professional interior and architectural shooter.

JOHN GOTMAN



Among his double exposures: intersections in Shinjuku on top of Buddhist statues (far right), and temple exteriors with restaurant interiors (bottom left).

manipulating photos, and making them perfect."

He wanted to recapture the fun of film photography, but to do it in a new way. "In Tokyo, you see such a blend of old and new, tradition and contemporary, both urban and in the gardens," he explains. "I wanted to combine them, but to do it in a way where I wouldn't necessarily see the results."

Each day, he would hit the streets with a Mamiya C330 and several rolls of 120 film, shooting each with a specific focus—nature in the gardens, neon lights in urban scenes, or prayer time at temples. After finishing a roll, he would label it by subject, rewind it, and reshoot the roll in a contrasting location.

His biggest surprise came after processing the film. "I knew to expose for highlights, and shoot for contrast, but I was blown away by how well the images seemed to line up," he says. "It was an effect I was never able to get by layering in Photoshop." His scans of the transparencies needed very little editing.

Neitzel has turned his experiment into an ongoing series titled *Ichi-go, Ichi-e*, which means *One Time, One Chance*. He explains, "Tokyo is one of the most interesting cities to explore and to capture," he says. "Not knowing what you'll discover is what photography is all about."

—Lori Fredrickson

THE NEWEST KEY TO CREATIVE FREEDOM

The Sweet 35 Optic joins Lensbaby's Optic Swap™ System. This 35mm f/2.5 selective focus optic comes equipped with a 12-blade adjustable aperture, letting you continuously resize your Sweet Spot of sharp focus and surrounding field of soft blur as the moment unfolds. Creative freedom meets creative control in Sweet 35, one of 7 easily swappable optics available from Lensbaby.

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photo by laura kicey

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Odd Fish

In regard to the first-prize photo (Your Best Shot, September 2011), the deckhand who was throwing up baitfish for the pelicans must have been a really skookum fella, since that "baitfish" bears a lot of similarity to a humpback whale. Fish have vertical tailfins. Marine mammals have horizontal tailfins, and that one sure looks horizontal. ***Bob Adkins***
Haines, AK

ENJOYED YOUR HDR article in the October 2011 issue. When my wife and I are on the road shooting buildings and machinery, HDR often saves us time. We have waited as long as three days to get permission to set up lighting for an interior shot. We use several applications, as what works well in one for some subjects will not work for others. As you mention, we used several layers and manually adjusted each layer before modern software made it easier. We still do if there's something moving in the scene. A bit of wind in the trees can make them soft. ***Bob Sheret***
Victoria, BC, Canada

WILL FULL-FRAME cameras ever decrease in size and weight (price, too)? It was a big sensation when the Olympus OM-1 appeared because it was so small and light. I could carry three camera bodies, four lenses, and other equipment. Now if you want to use full-frame cameras and to carry a variety of equipment, you need a pack mule. APS-C and Four-Thirds do not equal full-frame. ***Stan Marcus***
Montclair, NJ

THE NATIONAL Hispanic Cultural Center (Backstory, September 2011) is in Albuquerque, NM, not in Santa Fe. ***Bill Kent***
Corrales, NM

DURING THE PAST 50 years, I've witnessed many changes in Pop Photo, but during the past 15 years this magazine has increased my knowledge of travel and geography manyfold. Where is the art of photography? You do not award first prize (Your Best Shot, August 2011) to a picture of the Golden Gate Bridge hanging under a layer of clouds. It was an ordinary photo. ***Akhtar Mirza***
Lajore, Pakistan

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Two-for-One Shots

Q In "10 Things You Should Know About Flash" [October 2011], you stated that all flash photos are double exposures. From reading your explanations, it sounds like you're saying that whenever you take a photo using flash, there are two separate photos taken, and that each can be doctored as desired. But why are flash photos just single files?

Tim Daugherty
Escondido, CA

A *A double exposure does not make a double photo. What we were trying to convey is that a flash photo consists of two different exposures occuring simultaneously—or nearly so—and that these exposures can be, to a great extent, adjusted independently via the camera settings. Often, the exposures overlap: In a photo of a lamp-lit subject with fill flash, the subject will be illuminated by a mix of ambient light and flash. In some photos, the ambient and flash exposures are fully separate. A classic example: using flash to illuminate a subject in deep silhouette against a background sunset. The flash exposure will have no effect on the sunset exposure, and vice versa; each exposure can be set independently via shutter, aperture, and flash output level.*

Q **REFLEXOLOGY**

Based on your review (November 2011), the new Sony A77 sounds like a terrific camera. But its design raises questions: The OLED finder sounds excellent, but if there is no optical viewfinder why does the camera need a mirror at all? And, the very definition of a "reflex" camera implies that the user is sighting through an optical path that reflects off a mirror; if that is no longer what is happening, is it correct to call this camera a "DSLR?" Is it time for a new camera designation?

Paul Monaco
Medford, OR

A *The reflex mirror in modern single-lens reflexes, both film and digital, does more than reflect the image up to the prism viewfinder*

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assembly. It also directs light to metering and phase-detection autofocusing modules. In the Sony A77 and its ilk, a fixed, transmissive mirror is used solely for AF and metering. This allows the camera to focus continuously during fast bursts and video capture, as the mirror stays put.

We're not quite sure what to call such cameras, particularly since Sony is the only firm to make them. They've been called hybrid DSLRs, which explains nothing. Sony's own designation is SLT, for Single Lens Translucent. Any other ideas, readers?

Q DIFFRACTION REACTION

Years ago, the majority of the lens tests published in photo magazines would report the aperture by which the lens being tested became "diffraction-limited." As the diaphragm was closed down, image degradation due to diffraction increased, and at some point, image degradation was due mostly to diffraction, and therefore the image quality had become diffraction-limited. I have noticed that lens tests no longer report the aperture by which the tested lens became diffraction-limited. Why is that?

Greg Smith
Phoenix, AZ

A *You can easily discern diffraction effects on image quality in the SQF charts in our lens tests. SQF scores typically peak at mid apertures, then decline as diffraction takes its toll. If you turn an SQF chart sideways (counter-clockwise) the chart will form a classic bell curve, with the peak near the center, and dropping off to either side.*

As this degradation occurs along a continuum, it makes little sense to state one single aperture at which image quality is diffraction-limited. Better to use our SQF scores to determine optimal apertures based on the kind of photography you are doing, the depth of field you need, and the intended degree of enlargement.

Q EXCLUSIONARY OPTICS

What happens if a digital-only lens is used on a film camera?

Nancy Engelsberg
Rome, Italy

A *It will explode. (Just kidding.) "Digital-only" is a confusing term that, happily, is falling into disuse. Digital SLRs with smaller-than-full-frame (e.g., APS-C) sensors can use lenses that project a smaller image circle than those designed for use on full-frame cameras. Early on, they were dubbed digital-only to set them apart. Today we call them APS-C lenses after the sensors they're made for.*

An APS-C lens on a full-frame camera—film or digital—tends to produce serious vignetting because its image circle can't cover the entire frame. Canon prevents this by making its APS-C lensmount (designated EF-S) incompatible with its full-frame DSLRs. With Nikon APS-C lenses (designated DX) on a full-frame Nikon DSLR, you can switch the camera to DX mode to crop out the vignetting.

Going the other way, full-frame lenses work fine on both APS-C and full-frame bodies.

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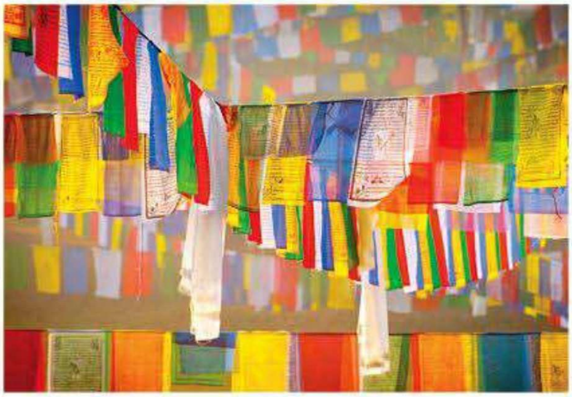
3rd Place $100 Prize

CHRISTIAN MÜLLER-PLANITZ, 43, SOFTWARE ENGINEER, SALT LAKE CITY, UT

"The photo was taken very early in the morning in Lumbini, Nepal—the birthplace of Buddha. We didn't quite know what to expect when our rickshaw driver dropped us off at the famous Bodhi Tree. There were monks praying under it, but I was even more fascinated by all the prayer flags strung through the garden in the misty, early morning light." (muepla.zenfolio.com) **TECH INFO:** Nikon D700 with 70–300mm f/4.5–5.6 Nikkor lens; 1/400 sec at f/10, ISO 800. Minor edits in Adobe Lightroom.

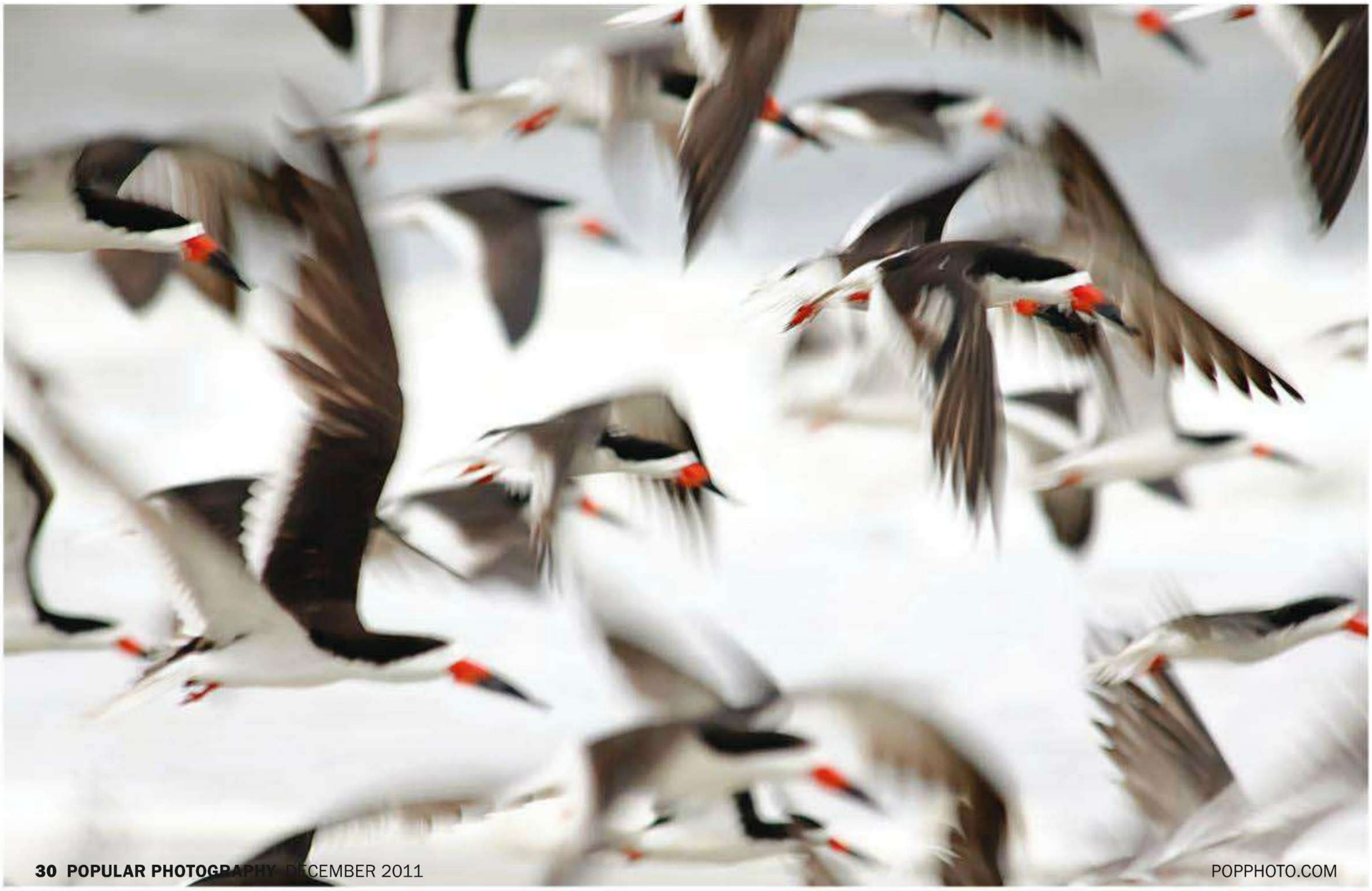


2nd Place $200 Prize

MORRIS BENNETT ALTMAN, 56, IT DIRECTOR, QUEENS, NY

"We knew that there had been skimmers spotted on Long Beach, New York, for weeks. On a cloudy morning, I was sitting on Nickerson Beach, 15 feet away from about 200 black skimmers, when they blasted off. We had been hoping for a pretty sunrise—we didn't get that, but it allowed me to use a nice, slow shutter speed. This, the fourth frame of a seven-shot burst, was my favorite." (morrisaltman.zenfolio.com)

TECH INFO: Nikon D200 with 80–400mm f/4.5–5.6D Nikkor VR lens and Nikon Speedlight SB-800 with Better Beamer FX-4 flash extender; 1/80 sec at f/5.6, ISO 800. Edits in Adobe Photoshop CS5 with Noiseware Professional plug-in.



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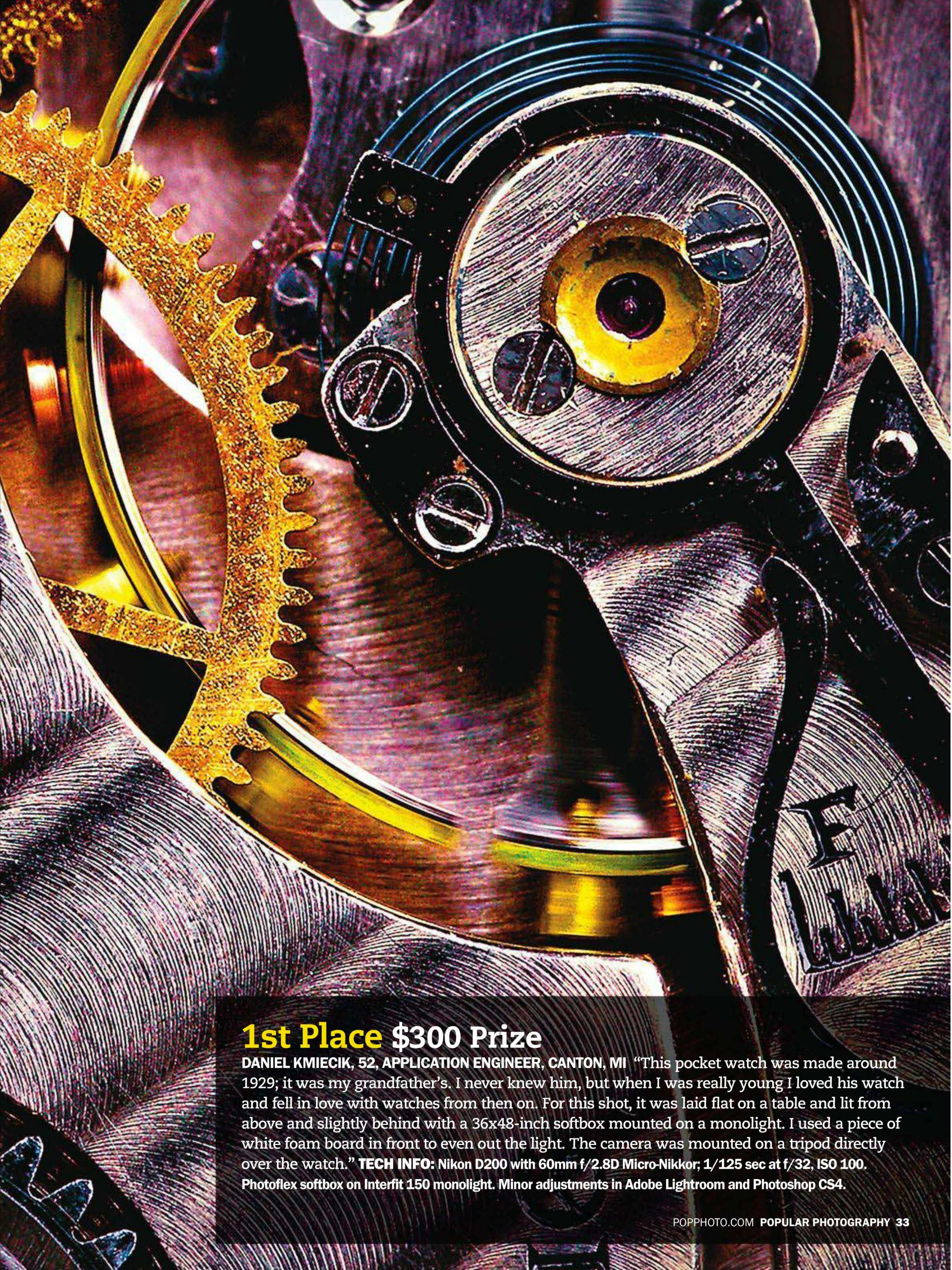

1st Place $300 Prize

DANIEL KMIECIK, 52, APPLICATION ENGINEER, CANTON, MI "This pocket watch was made around 1929; it was my grandfather's. I never knew him, but when I was really young I loved his watch and fell in love with watches from then on. For this shot, it was laid flat on a table and lit from above and slightly behind with a 36x48-inch softbox mounted on a monolight. I used a piece of white foam board in front to even out the light. The camera was mounted on a tripod directly over the watch." **TECH INFO: Nikon D200 with 60mm f/2.8D Micro-Nikkor; 1/125 sec at f/32, ISO 100. Photoflex softbox on Interfit 150 monolight. Minor adjustments in Adobe Lightroom and Photoshop CS4.**

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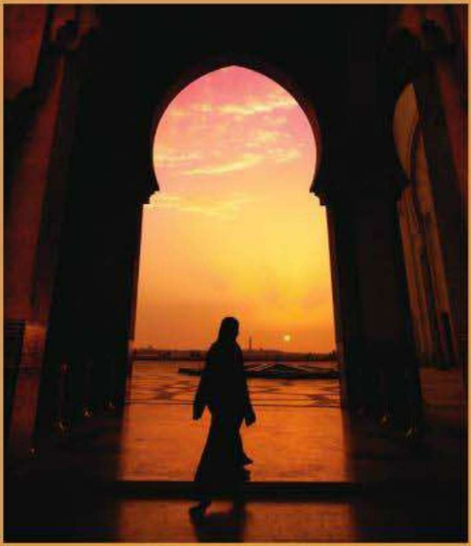
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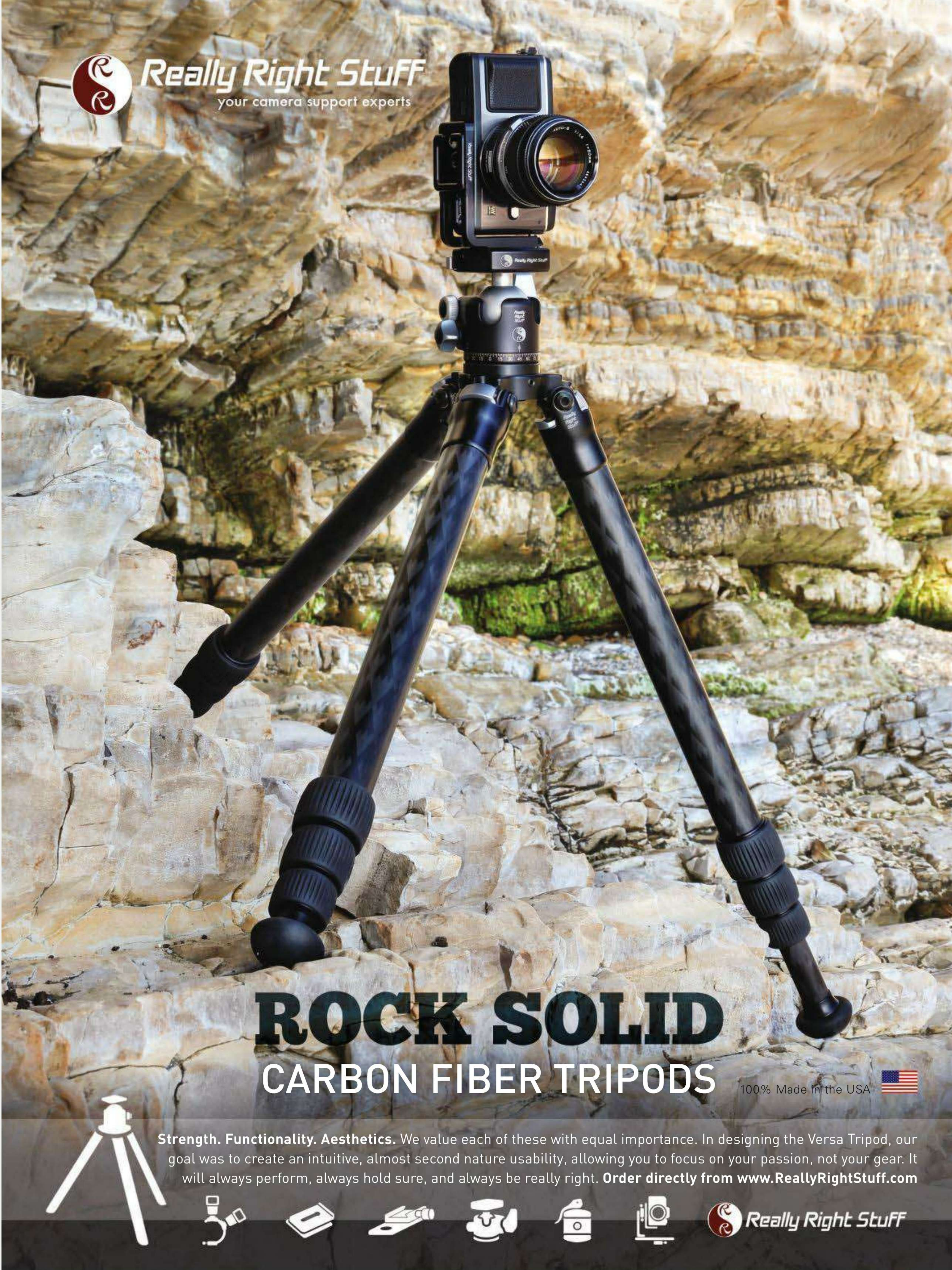
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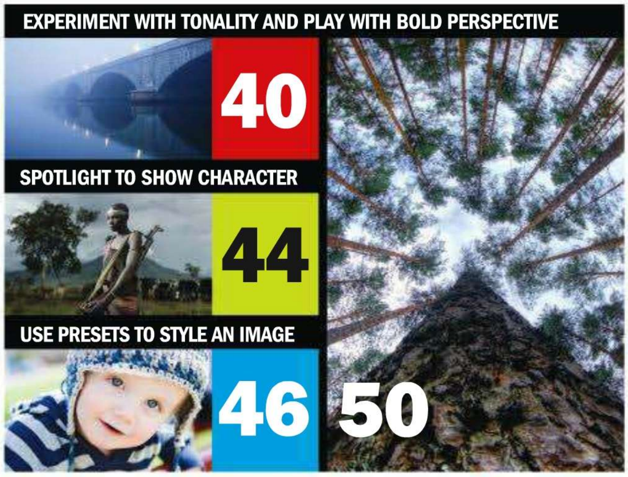

EXPERIMENT WITH TONALITY AND PLAY WITH BOLD PERSPECTIVE
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SPOTLIGHT TO SHOW CHARACTER
44
USE PRESETS TO STYLE AN IMAGE
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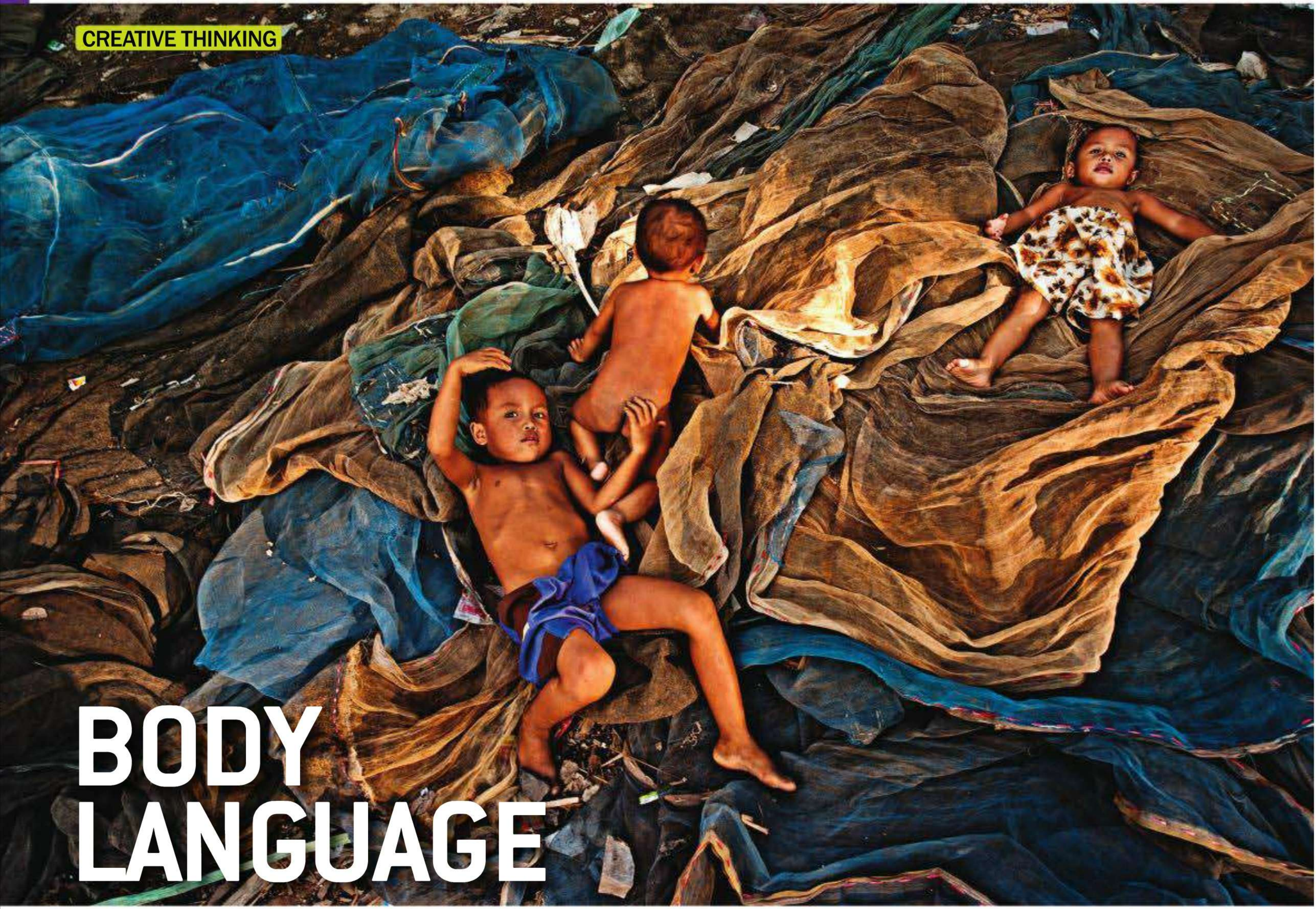
50

CREATIVE THINKING



Soyez set his Leica M8 rig to 1/60 sec and f/8, ISO 640. See his work at www.vincentsoyez.com

VINCENT SOYEZ

BODY LANGUAGE

With portrait subjects, it matters how you move

IF DOCUMENTARY pictures of people are your thing, New York-based commercial photographer Vincent Soyez advises you to make your subjects feel comfortable and establish a connection. This form of photography is more about personal rapport—complete with a physical, dance-like component—than it is about camera technique. That's not always easy, even for the pros.

In 2005, Soyez challenged himself by attending a documentary photography workshop in Cambodia. It was a stretch on many levels: culturally, visually, and personally. "I'm a shy person, and [documentary work] forced me to face things that didn't necessarily feel natural in order to get what I wanted photographically."

The experience was so inspiring that Soyez returned repeatedly to Cambodia over the next two years and documented a small lakeside village called Phnom Krom, near the city of Siem Reap. After a few visits and with the help of an interpreter, he got to know and be known by the locals. As he made these connections, inspiration kicked in—and interesting photos, like the one here, followed.

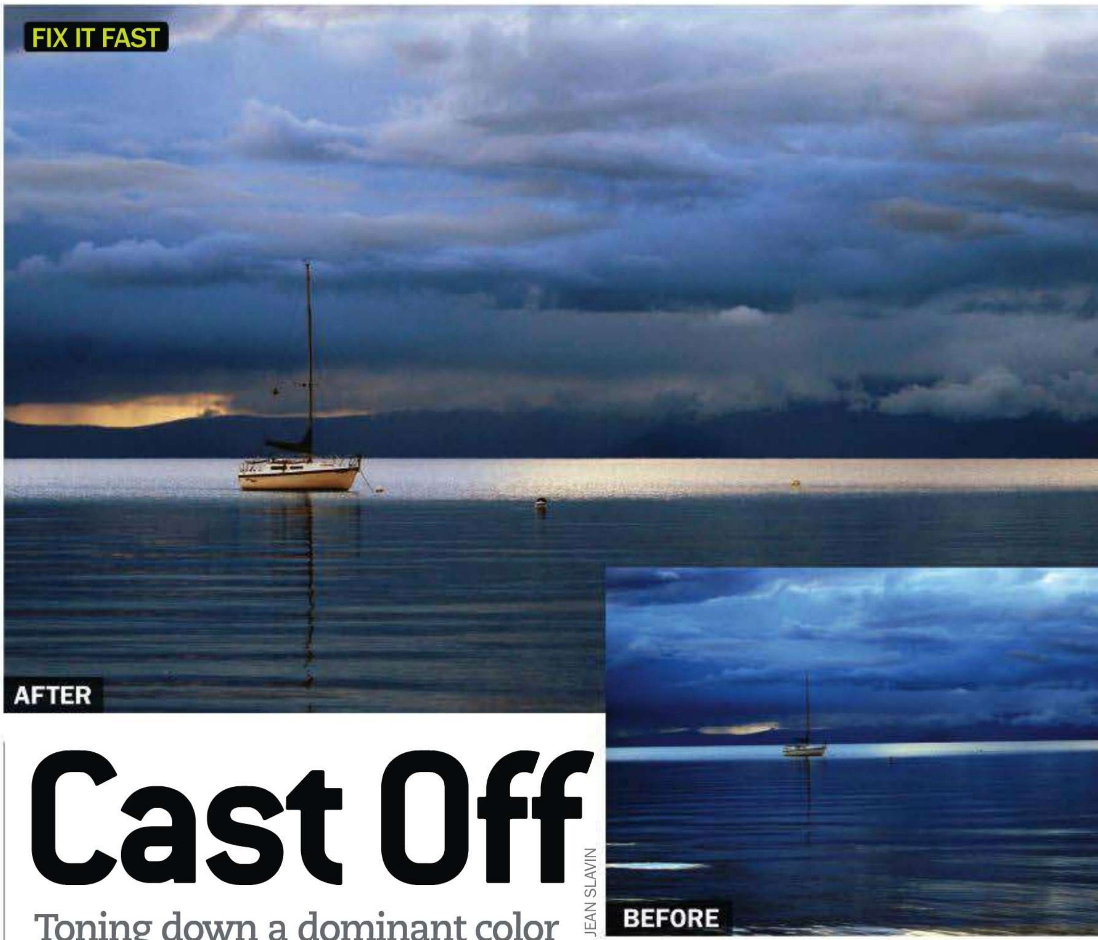
He shot it late one afternoon when he found these children playing on fishing nets under a stand of sunlit trees. His Leica M8 digital rangefinder and ultrawide 15mm Voigtländer lens allowed him to capture both the children and the wide bed of netting in a single shot, but he had to think sharp. Dappled light filtered through the trees, sometimes directly striking the kids and sometimes not. Timing mattered.

The shot also required a bit of sensitive choreography. He began by shooting on the ground, at eye-level with his subjects. But to achieve the composition he wanted, he would have to stand up and shoot down on the children, while not alarming or disturbing them. "You have to be careful in the way you move in these moments," he said. "You don't get many chances."

Soyez calmly waited for the light and bodies to align to his satisfaction. When the boy reached out to his sibling, the photographer quickly stood and fired off this one frame. "You get the feeling that these kids are floating on clouds," said Soyez of the shot. "They're not on the ground, but suspended overhead like cherubim on the ceiling of the Sistene Chapel."

—Laurence Chen

FIX IT FAST



JEAN SLAVIN

Cast Off

Toning down a dominant color

Jean Slavin of San Ramon, CA, shot with a Nikon D60 with an 18–55mm f/3.5–5.6G AF-S Nikkor lens for an exposure of 1/125 sec at f/5.6, ISO 100.

JEAN SLAVIN was surprised at how her picture of Lake Tahoe "turned out on such a gray, cloudy day." We were surprised, too, since the camera was set to auto white balance, which ordinarily renders gray scenes, well, gray. In any event, we thought the overall blue tone was much too heavy.

Working in Adobe Photoshop CS5, we leveled the horizon and cropped to place the boat on a Rule of Thirds grid intersection. Next, we went into Curves to adjust individual color channels. We reduced blue and added red and green, which we think provides a more natural yet still colorful rendition.

Total time fixing: 5 minutes.

You can see more of this photographer's landscapes at jeanslavinphotography.com.

—Dan Richards and Debbie Grossman

PHOTO GLOSSARY **DRAGGING THE SHUTTER**

A FLASH EXPOSURE strategy in which a photographer manually sets a relatively slow shutter speed (usually 1/8 to 1/30 sec, depending on the scene), this technique produces more background detail in a scene than typical automatic flash exposures record. Dragging the shutter is often employed by event photographers in dimly-lit indoor settings with relatively stationary subjects, and it relies on the instantaneous flash burst to freeze a subject sharply. (Without the flash, any subject or camera movement would produce objectionable blur at these shutter speeds.) With a TTL-dedicated flash system, the camera's meter will automatically produce the correct exposure for the flash-lit foreground subject. To determine what shutter speed to set for the background, meter it and set the shutter about about a stop faster. With brightly lit backgrounds or animated subjects, watch out for ghosting.

CAMERA : SIGMA SD1 : ISO100, F5.6, 1/160sec | LENS : SIGMA APO MACRO 150mm F2.8 EX DG OS HSM : 150mm | Copyright© Olga Vasilkova, V-studio

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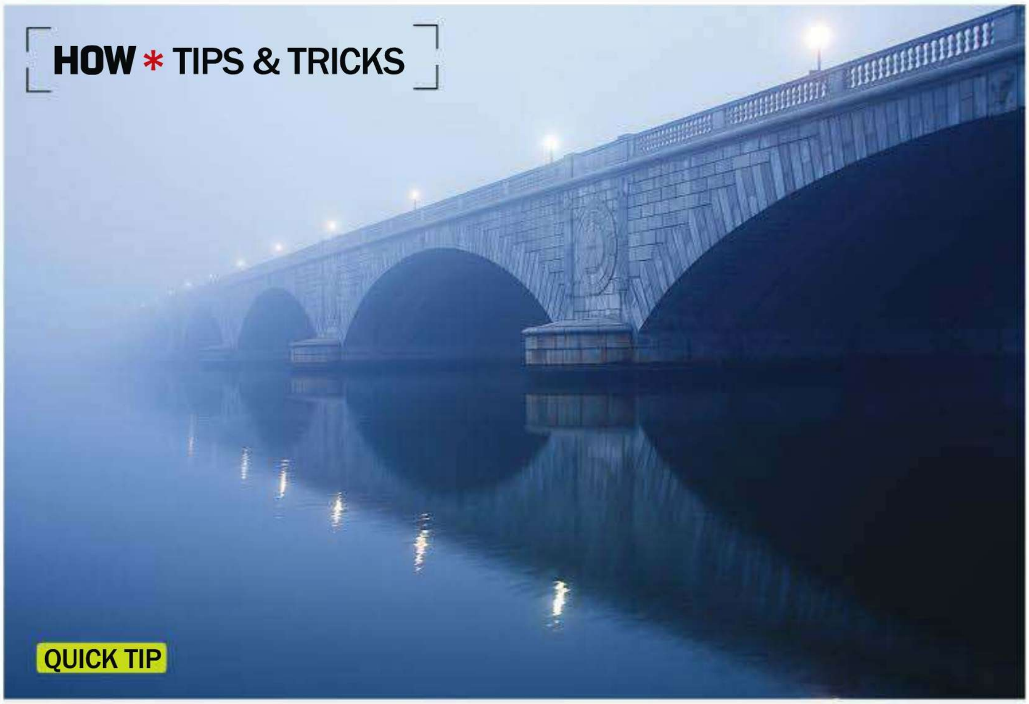


QUICK TIP

Faux Filters

Glass or gel filters aren't the only way alter tone

THE CHARACTER of a landscape is conveyed, in part, by tonality. Rosy-hued sunsets, for instance, suggest an inviting world of warmth and intimacy. As Portland, OR, pro photographer Mike Vraneza discovered along the banks of the Potomac in Washington, DC, a cool blue scene communicates something else.

"In the eerie morning light," he says, "the Memorial Bridge seemed perfectly serene, quiet, almost remorseful, which seemed right, because it leads off toward the Arlington National Cemetery."

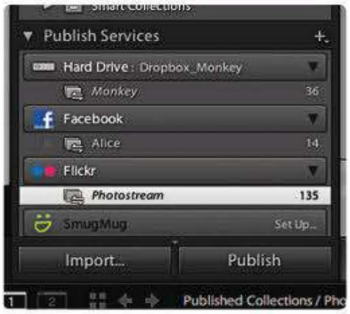
To obtain the mournful blues of Vraneza's photo here, you could thread a cooling filter over your lens. Or you could apply the exact tonality you want, after the fact, by adjusting the white balance in an image editor. Vraneza does this during the RAW conversion process. Setting a high Kelvin temperature (e.g. 6000K) will warm a scene, while a low Kelvin number (2800K) will cool it down. *—Peter Kolonia*

Mike Vraneza shot with a Canon 28–200mm f/3.5–5.6 EF lens on a tripod-mounted EOS 5D; exposure, 1.6 sec at f/8, ISO 50. For more of his work, go to mgvphoto.com.

MIKE VRANEZA/MGVPHOTOGRAPHY

30-SECOND SOFTWARE

SHARING WITH LIGHTROOM Adobe Lightroom 3 makes it easy to share images on popular sites such as Flickr, Facebook, and SmugMug. Just go to the Publish Services panel in the Library Module and click Set Up to activate one of the services. Once it's going, you can drag and drop images onto the site's icon; just click Publish to share them. The streams are synced, so if you remove an image while working within Lightroom, it will be deleted from the site, too. You can even view and respond to comments made by your contacts. Also useful is the option of publishing to a folder on your hard drive. And if you set up a cloud storage site such as Dropbox, your images will be available whenever and wherever you need them. *—Debbie Grossman*



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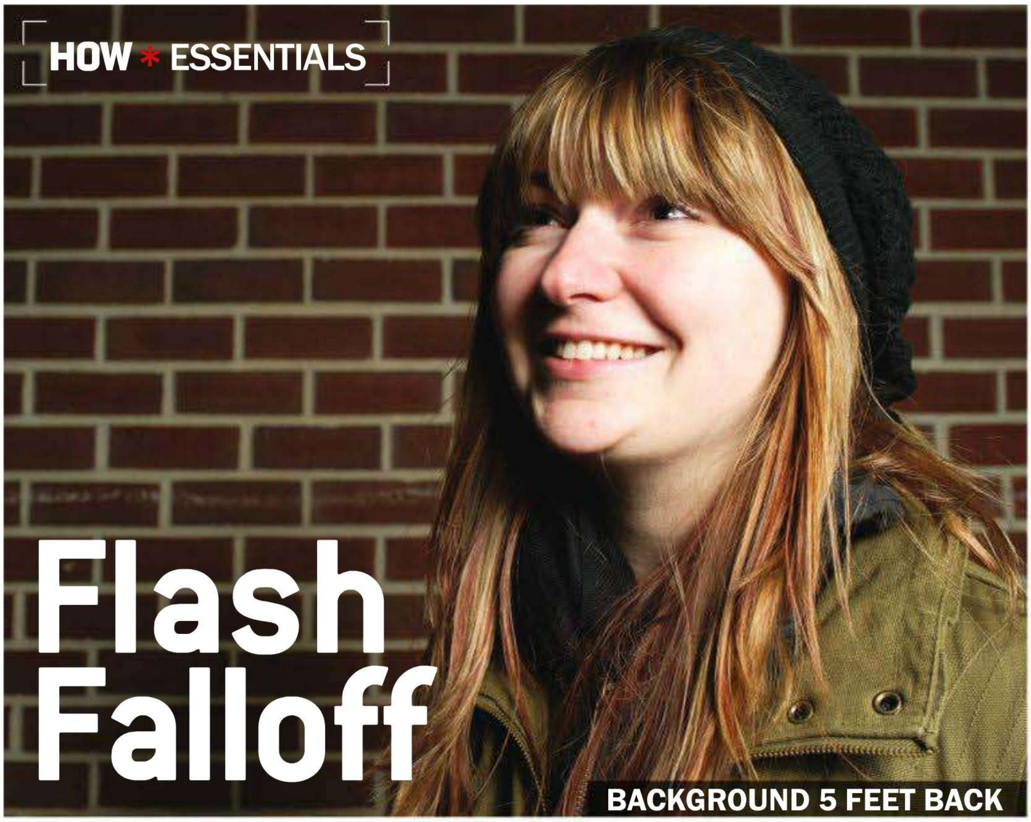
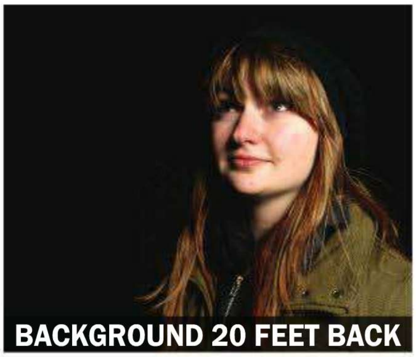


Flash Falloff

BACKGROUND 5 FEET BACK



BACKGROUND 20 FEET BACK

Why you don't get the lighting you think you will

IF YOU'RE ever at the Manhattan terminal of the Staten Island Ferry in the evening, you can catch a great free light show whenever a ferry approaches the dock: What looks like hundreds of fireflies will start flashing all over the boat. It's the tourists trying to photograph the Manhattan skyline with on-camera flash.

Unfortunately, few (if any) of them will get decent pictures. What happens is that their flash "falls off"—it fails to reach far enough to illuminate distant objects. It's not as if the light rays lose steam; those photons will keep going and going. But they spread out as they travel and thus become less concentrated.

The beam from a flash unit is cone-shaped. Photograph a relatively close object and most, if not all, of the light cone will cover it. But as you move the flash farther away, a smaller portion of the light cone hits the subject, as more of the light sprays wide of it. At a great enough distance, the flash's light becomes imperceptible to the eye as well as to a sensor or film. Imagine trying to water a small plant at a great distance with a garden hose set to a wide spray—you may pump out gallons per minute, but very little of it will actually hit the plant.

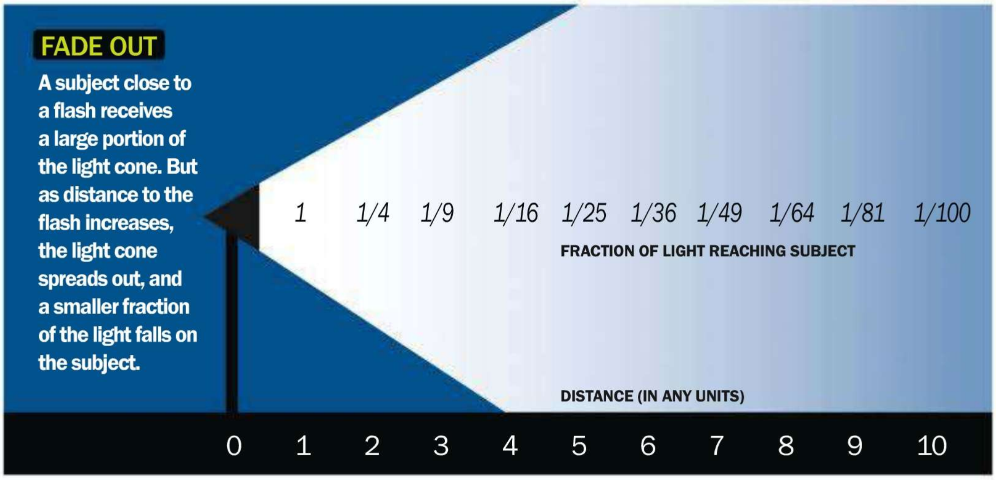
Flash can illuminate a brick wall that's close behind the subject. By moving the subject away from the wall, the flash falls off enough to leave the background in darkness.

That's the bad news. The worse news: Flash falls off as the square of the distance. In plain lingo, this means that if you move twice as far away from your subject, you get only one-quarter the illumination on the subject. Triple your distance, and you get only one-ninth the light.

Solutions? You can make the light cone narrower. If you have an accessory flash with a zoom head, setting the head to tele position will do this. Accessories such as the Better Beamer can also make a narrower cone. In either case, you still lose wide-angle coverage.

You can also set an accessory unit close to your subject and fire it from a distance via wireless trigger. Of course, this won't work when shooting the skyline from the ferry. In that case, turn the flash off and crank up the ISO to take the shot with the available light. If your camera has a night shooting mode, try that.

These principles, of course, apply not just to flash. They're equally valid for continuous light sources, such as hot lights. *—Dan Richards*



FADE OUT

A subject close to a flash receives a large portion of the light cone. But as distance to the flash increases, the light cone spreads out, and a smaller fraction of the light falls on the subject.

DAN BRACAGLIA (2)

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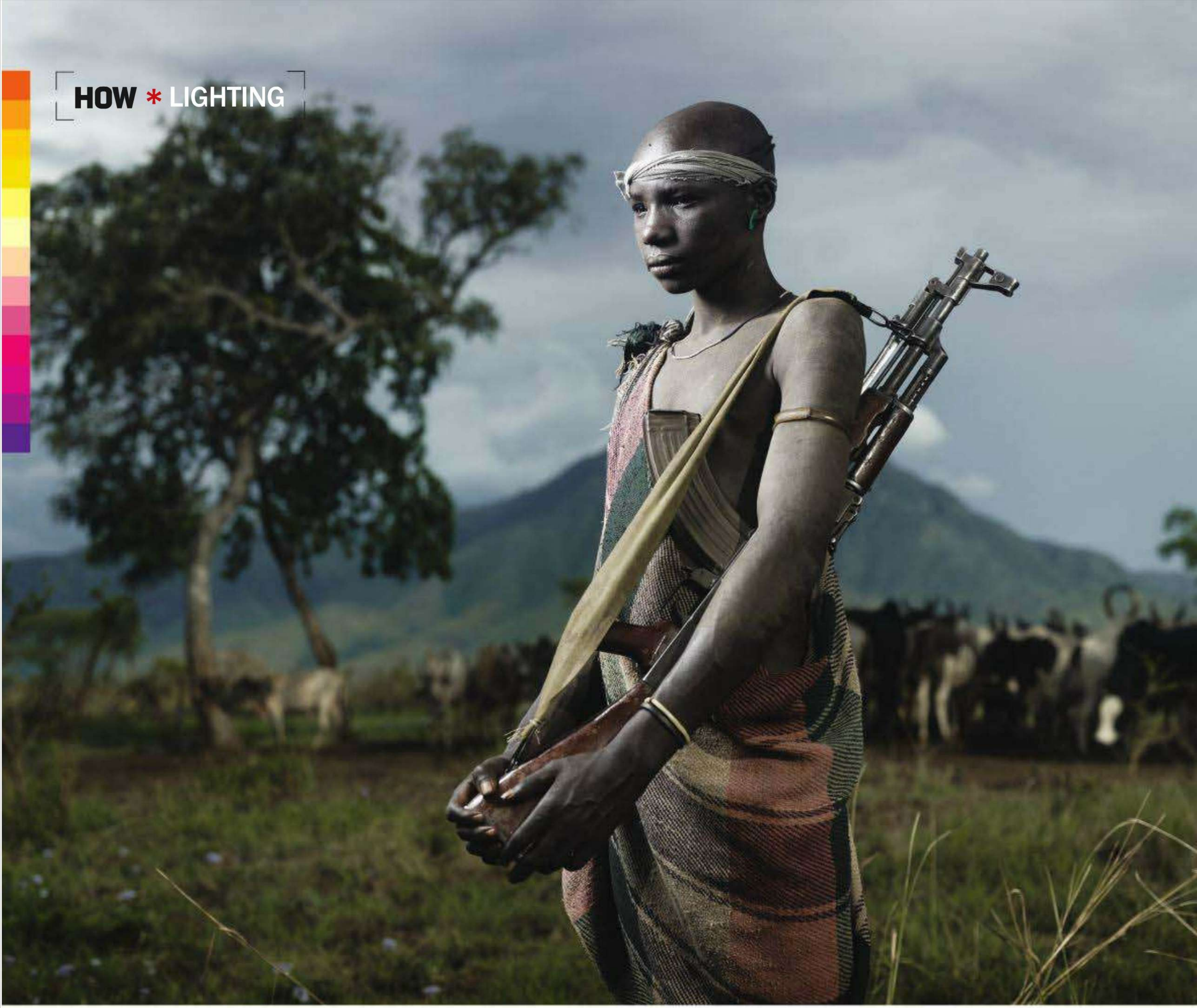


JOEY L.

Light for the Soul

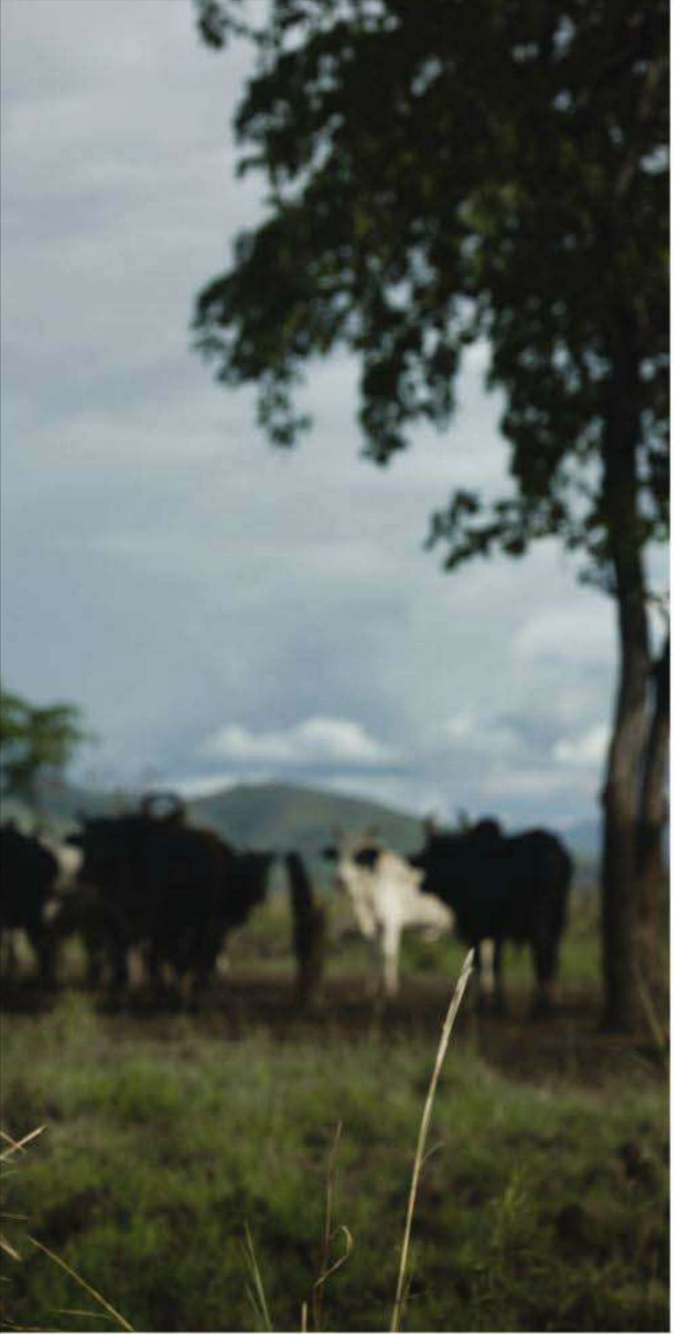
Classic lighting for outdoor portraits

FOR LIGHTING portraits, you can accentuate the shape of a subject's figure, bring out the texture or drape of the clothes, or, as in environmental portraits, adjust the light so that the subject and background are of equal importance. Or you can light for character. Joey Lawrence, a young New York advertising pro and teacher (www.learnfromjoey.com) does just this for an ongoing personal series of Ethiopian portraits.

Lawrence (who goes by Joey L. professionally) has made three trips to the remote region of Ethiopia's lower Omo Valley, where he lavishes as much photographic care and attention on herders and other natives as he does for any Hollywood star. “Usually ethnic photography is presented in a very photojournalistic way,” says Lawrence. “That's not my intent. For me, each image is more a collaborative effort between myself and the subject.”

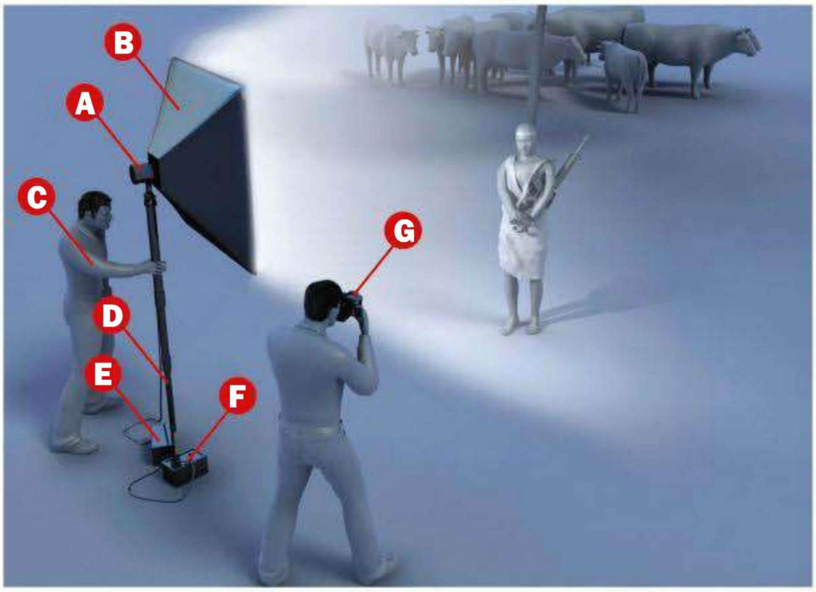
Joey L.'s blog (www.joeyl.com/blog) offers a fascinating look into the daily life and lighting strategies of a highly successful pro shooter.

To make the portraits, he uses the same lighting equipment and techniques in the depths of Africa as he did for his famous ad campaigns for the *Twilight* films. Instead of Robert Pattinson, his subjects are cowherds such as Kolotola, depicted here. To bring



HOW TO LIGHT FOR CHARACTER

SIMPLE ▲ COMPLEX



KRIS HOLLAND/MAFIC STUDIOS (ILLUSTRATION)

Shooting in the Omo Valley, one of the remotest corners of Ethiopia, Joey L. lugged much of the same gear he uses in his New York City studio. He housed his Profoto 7 Pro-7B strobe head (A) in a customized softbox (B). He recessed the head deeply into the box in order to produce a slightly more contrasty light, with controlled spill and faster falloff that illuminated little of the immediate foreground. An assistant (C) held (and aimed) the softbox and head, which were mounted on a monopod (D). The photographer controlled the strobe with a Profoto 7B powerpack (E) which he juiced with a car battery (F). (The car battery was charged by a Brunton solar panel, not shown.) Joey L. shot with three Phase One products: the 645 camera body (G), P45+ digital back, and 80mm f/2.8 lens. He fired the strobe wirelessly with the PocketWizard Plus II transceiver and receiver built into the 7B.

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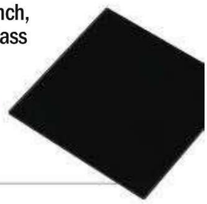


Lawrence set an exposure of 1/125 sec at f/5.6, ISO 100, which effectively underexposed the background by 2 stops. To get it, he mounted a 0.6 ND filter on the lens.

out dignity and character in his subject, Lawrence uses two main techniques, Rembrandt lighting and spotlighting.

Favored by painters and photographers for centuries, Rembrandt lighting is widely considered one of the most flattering forms of lighting for the human face. Throwing half the face in shadow, it simultaneously suggests the shape of the head while injecting shadows—and with them, a sense of mystery.

To create it, says Lawrence, "we held the softbox just slightly off-camera on the left side of the image and suspended it on the opposite side of the subject's face, so that the shaded side is toward the camera."

The result gives a classic look to a subject not usually afforded a classic interpretation.

Another surefire studio technique Lawrence applied here is spotlighting. To showcase his subject and allow the 13-year old cowherd to stand out from—and transcend—his surroundings, Lawrence said he "underexposed the background by about 2 stops, while properly exposing the subject with my lights."

The result: a portrait in which lighting helps heighten—almost venerate—a subject and make character the message.

—By Peter Kolonia

Lightroom Presets

Bundled settings for quick and beautiful transformations

Jessica Thew's quick RAW conversion and use of a preset made this image shine.

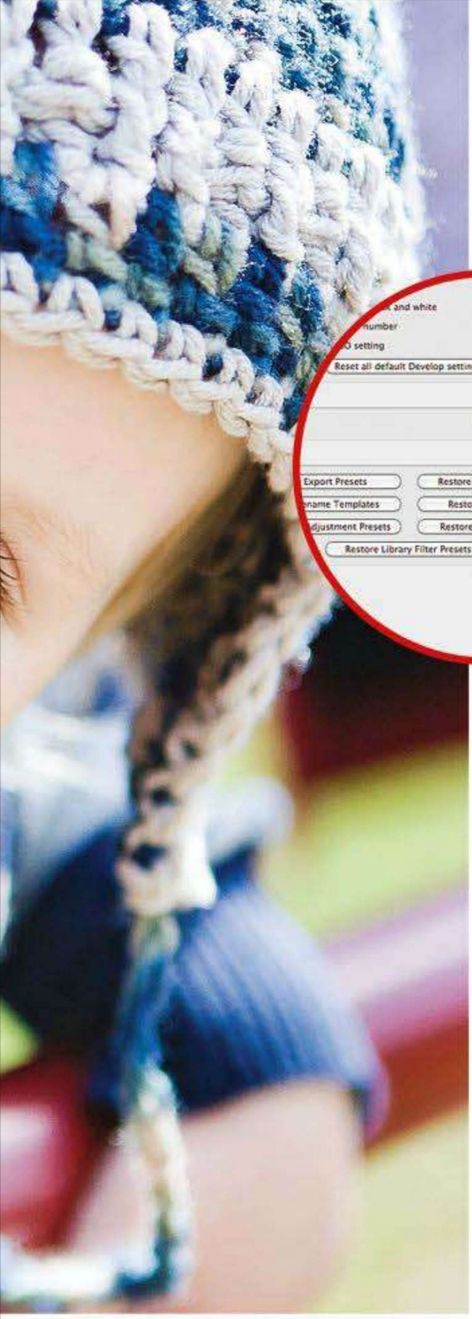
JESSICA THEW/ONE WILLOW

DIGITAL CAMERAS can produce images with incredibly accurate color and neutral white balance. While that can be a good thing, it is wise to consider a RAW file, shot with neutral tonality, as just a starting point. With RAW files, it is so easy to make good-quality color transformations that each image has tons of potential.

Photographer Jessica Thew was inspired by that potential and began using Adobe Lightroom to experiment with tone in her images. She saved her favorite settings as presets—groups of settings that you can quickly apply to your image in Lightroom or Adobe Camera Raw.

When her blogged images began to attract attention, she started packaging and selling groups of presets through her company, One Willow (www.onewillowboutique.com). A number of other outfits sell presets, and most sets are fairly inexpensive (One Willow's, for example, are $39 for a set that includes 20 presets and 17 postprocessing effects).

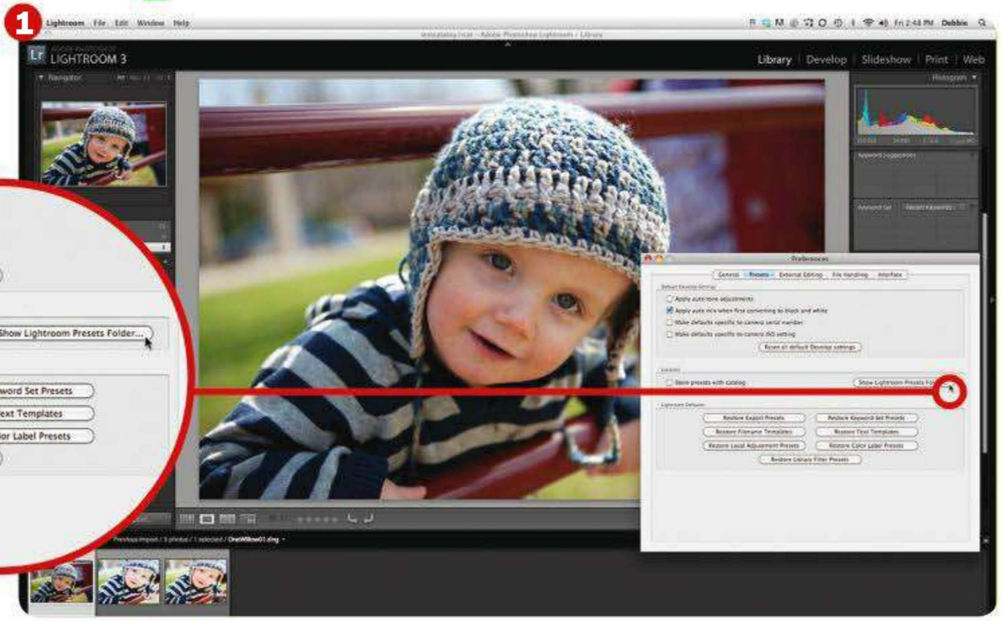
While not all presets are created equal, the best ones both improve your image and act as a teaching tool. After applying one, go through Lightroom's adjustment



panels and check out what the preset is doing; you'll learn ways of manipulating images that you probably wouldn't have thought of yourself.

Here's how to load and use a preset, and some tips on how to make them work for you. We used One Willow's Retro Candy Collection, but the steps are the same for whatever preset you use. *—Debbie Grossman*

SIMPLE **COMPLEX**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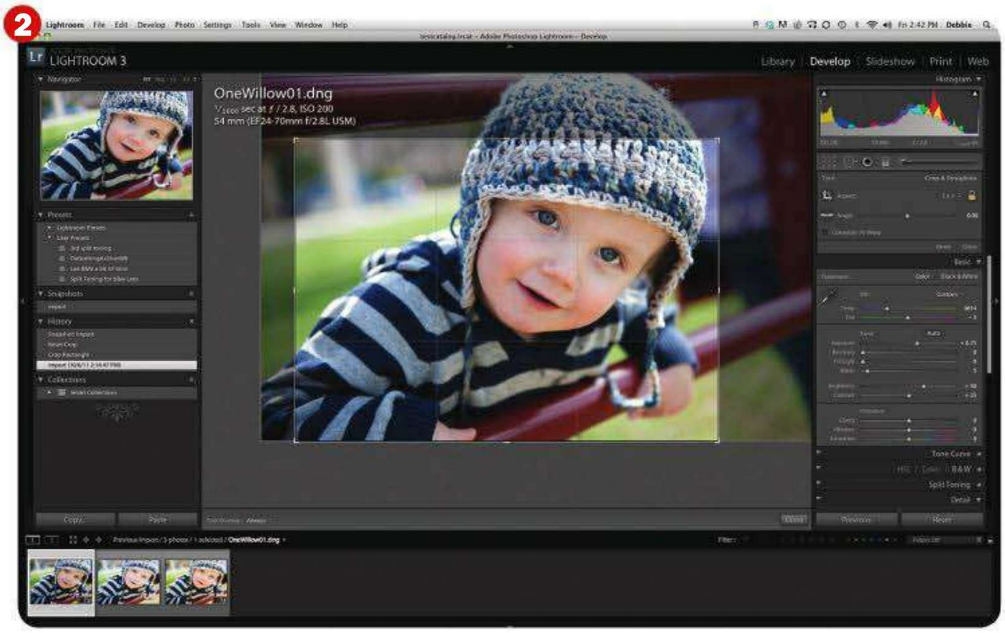
Restore Color Label Presets
Restore Library Filter Presets

Step 1

After you download a group of presets, put them into a folder where Lightroom can access them. **Go to Lightroom preferences (under the Lightroom menu on a Mac, and under Edit on a PC), choose the Presets tab, and click on the button labeled Show Lightroom Presets Folder.** Locate the presets you downloaded, then drag the entire folder of presets into the Lightrom Presets folder. It's important to move the folder, rather than dragging individual presets, so that your presets remain organized once imported into Lightroom.


2
LIGHTROOM 3
Library | Develop | Slideshow | Print | Web
OneWillow01.dng
1/1600 sec at f / 2.8, ISO 200
54 mm (EF24-70mm f/2.8L USM)

Step 2

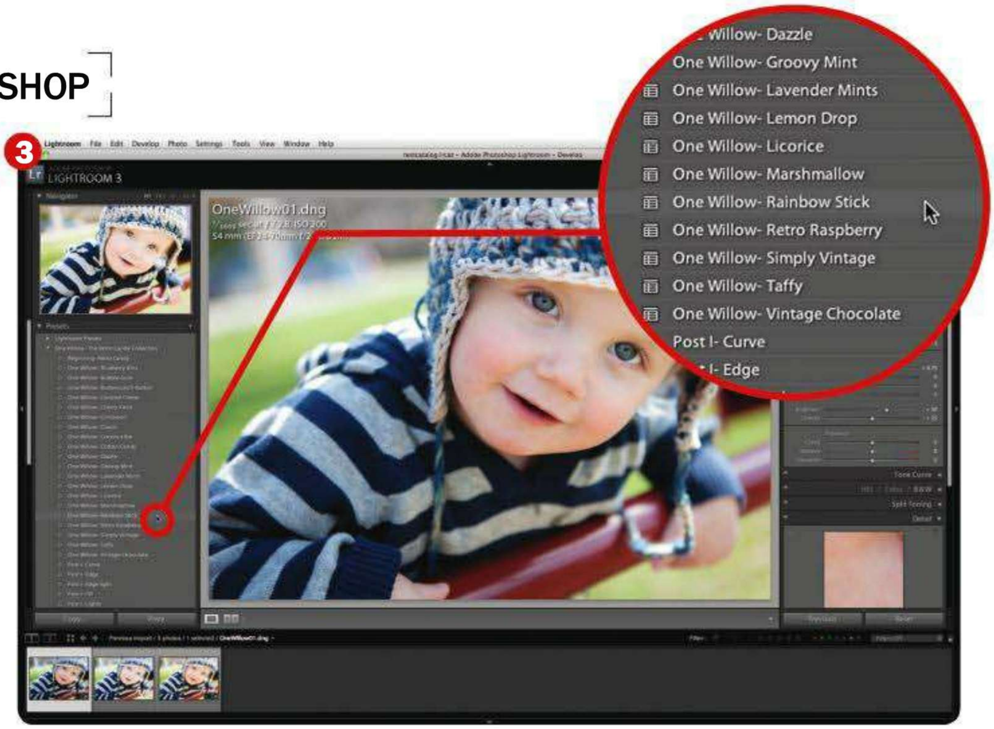
Before you apply a preset, get your image into optimum shape. While the white balance will often be tweaked by the preset, using the Exposure slider to set your white point and the Blacks slider to set your black point are key. This is also the time to do any necessary cropping and retouching. In this image, Thew cropped in closer, fixed the exposure, then used the Adjustment Brush to brighten her subject's eyes and clean up his complexion.

To see your newly installed presets, you may need to close and then restart Lightroom.

Step 3

Before you choose a preset, make a snapshot of your retouched image so that you can always go back to that state. **Then open the folder of presets and watch the navigator on the left as you mouse over the list.** As you hover over a given preset, you'll see a preview in the Navigator window. If your presets are heavier on the toning, as this set is, pay particular attention to any skin tones in your images—be careful to make sure your skin tones remain natural. When you see a preset you like, click on it to apply.

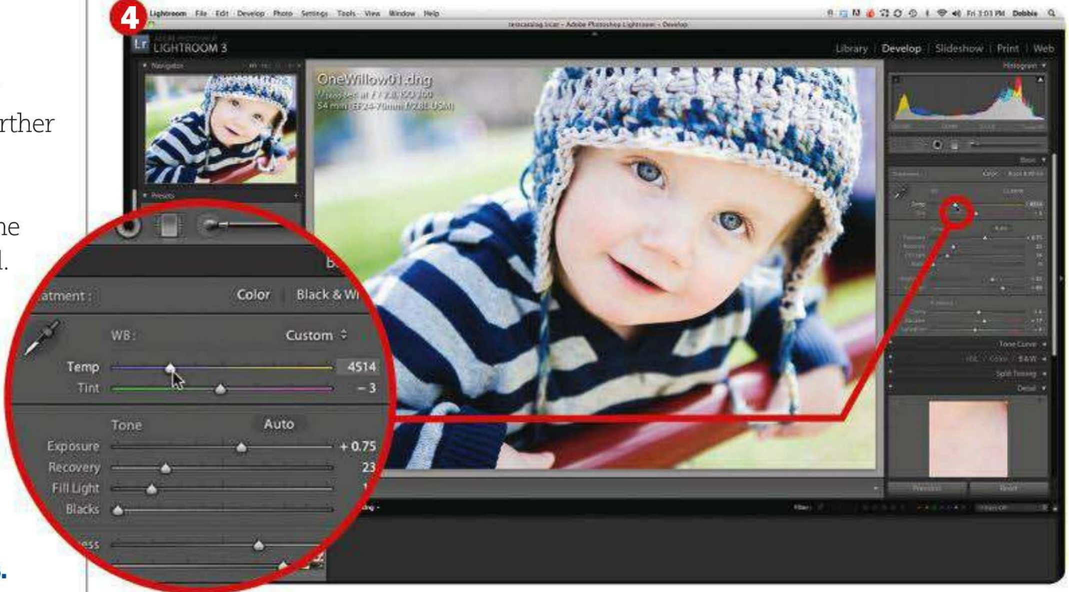
3


Willow- Dazzle
One Willow- Groovy Mint
One Willow- Lavender Mints
One Willow- Lemon Drop
One Willow- Licorice
One Willow- Marshmallow
One Willow- Rainbow Stick
One Willow- Retro Raspberry
One Willow- Simply Vintage
One Willow- Taffy
One Willow- Vintage Chocolate
Post I- Curve
I- Edge
LIGHTROOM 3
OneWillow01.dng

Step 4

Some presets will work perfectly right away, but others require further adjustment. The Rainbow Stick preset works for this image, but makes it overly warm, causing the shadows to appear orange-toned. This preset includes added Vibrance, and, Thew notes, anytime you add saturation or Vibrance you can get orange tone in the shadows. **A quick adjustment of the white balance makes the subject's skin tones peachier and minimizes the orange shadows.**

4


LIGHTROOM 3
Library | Develop | Slideshow | Print | Web
OneWillow01.dng
atment :
Color
Black & Wh
Tone
Auto

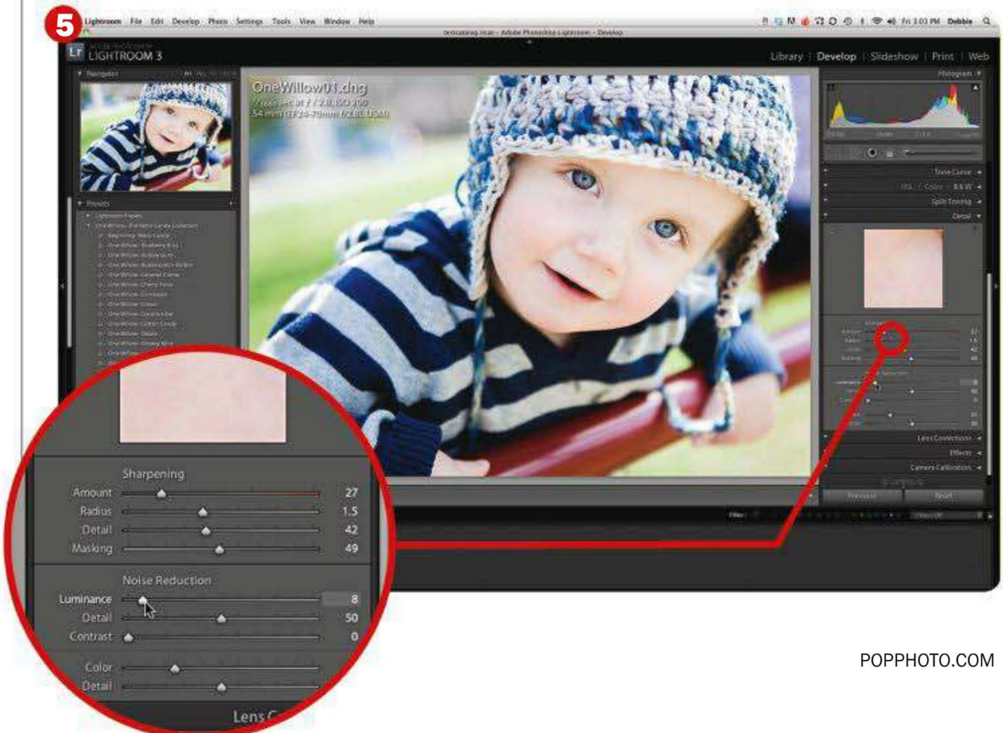
WB: Custom
Temp 4514
Tint −3
Exposure + 0.75
Recovery 23
Fill Light
Blacks

Sometimes presets can make an image look flat. In this case, the preset was fine, but if your image lacks depth, fix it by readjusting the Blacks slider.

Final Step

After applying and adjusting your preset, check out the Detail panel. Some presets, like this one, add a bit of extra noise reduction. **If your preset didn't, or if the reduction is too heavy for your image, now is the time to tone it down.** One Willow's Retro Candy set also includes finishing presets called Posts, which can add effects such as vignettes or extra fill light. Apply them as a final touch.

5


LIGHTROOM 3
Library | Develop | Slideshow | Print | Web
OneWillow01.dng
Sharpening
Noise Reduction
Lens C

Amount 27
Radius 1.5
Detail 42
Masking 49
Luminance 8
Detail 50
Contrast 0
Color
Detail

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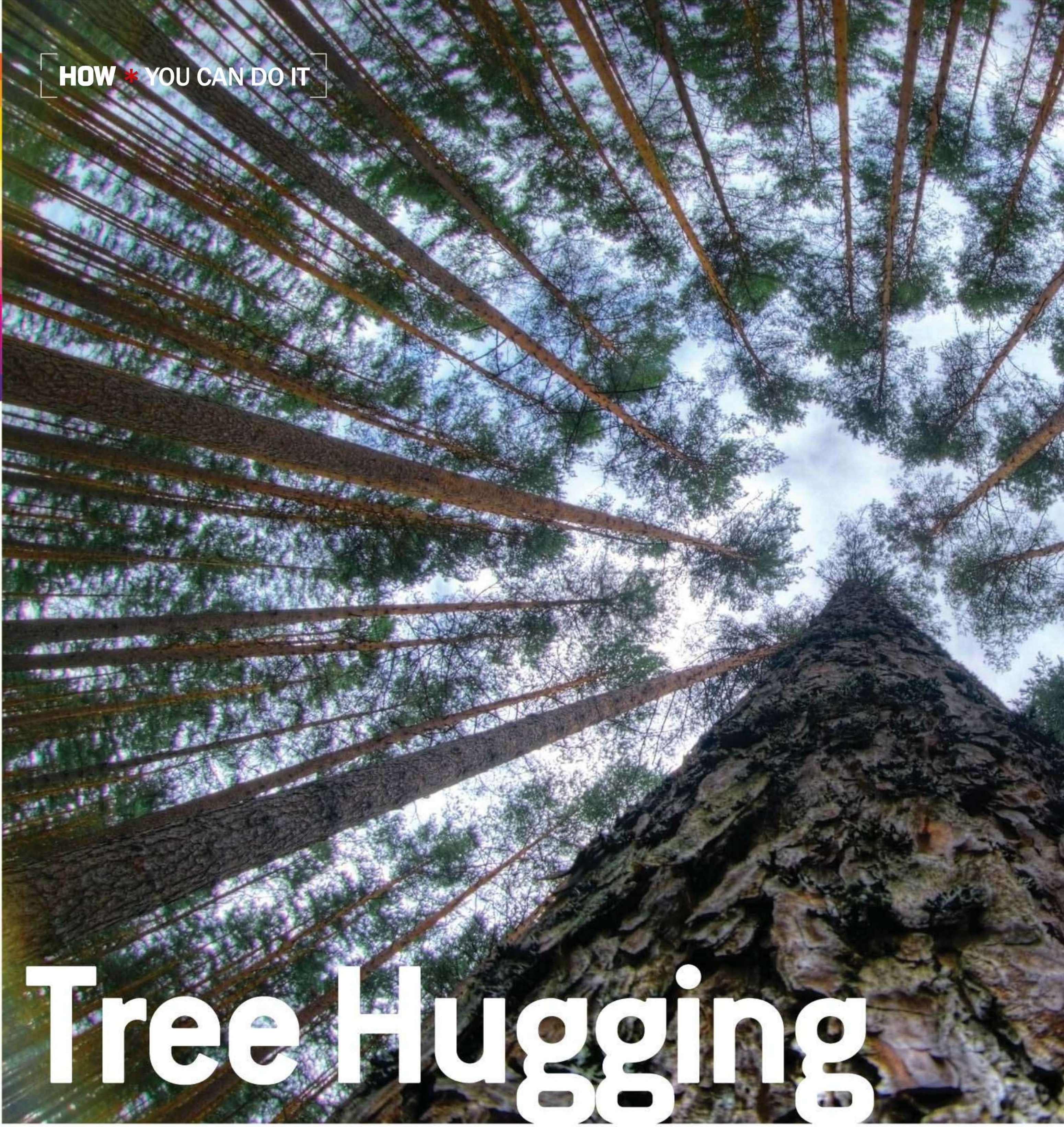


Tree Hugging

Get more intimate with your subjects

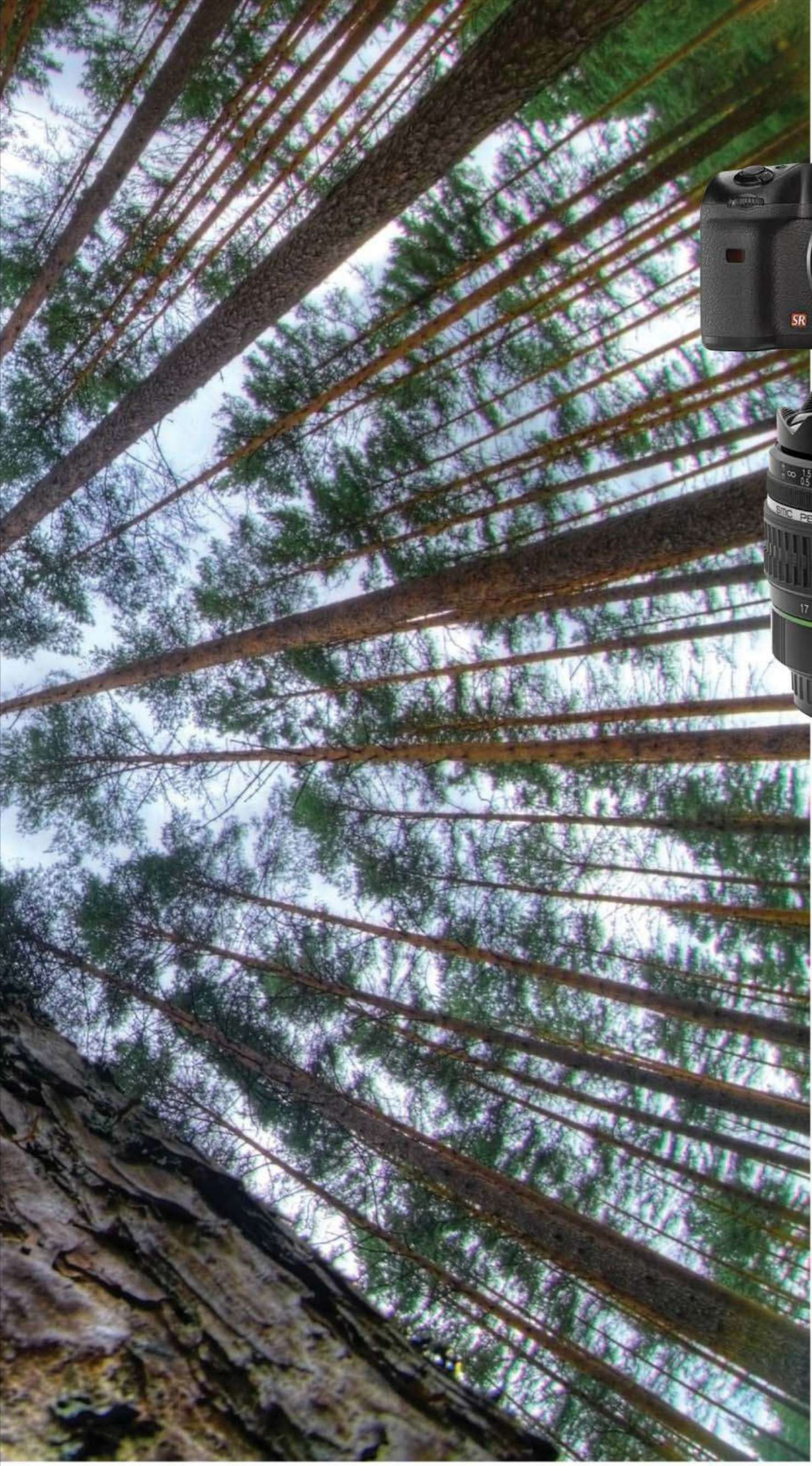
ERIK VAN HANNEN/GETTY IMAGES

WE ALWAYS SAY it helps to get close to your subject, and Erik van Hannen of the Netherlands did just that while vacationing in Råda, Sweden. To take the shot shown here, he firmly braced his Pentax K20D against the trunk by throwing his arms around and hugging his subject. You can't get much closer than that. "I don't recommend doing this when there's anyone around who can see you," van Hannen advises.

For a picture as good as this one, though, we feel it would have been worth the embarrassment. Though we've seen plenty of fisheye photos looking up at a stand of trees, rarely do you come upon this level of detail, color, structured line, and dizzying prospective all in the same image.

How did van Hannen capture such qualities? For strong line,

For more of van Hannen's nature photography go to www.flickr.com/photos/erikvanhannen



he sought out a stand of evenly distributed pines, with tall, straight trunks and minimal branching that leafed out only at the top of the canopy. For color and detail, he used high-dynamic-range (HDR) by making separate exposures for the shadows, midtones, and highlights, then blended the three exposures later in software. Without it, this high-contrast scene would have lost detail, texture, and color in the highlights, shadows or both.

So the next time you explore the forest for photos, give van Hannen's technique a try—even the tree hugging. *—Peter Kolonia*

For this photo, van Hannen used a Pentax K20D (A) and an 8mm Russian Peleng fisheye. The Pentax equivalent, a 10–17mm f/3.5–4.5 fisheye zoom (B) is shown here.

SIMPLE ▲ COMPLEX

Step 1

Gather your gear. It is important to have a camera with autobracketing and an ultra-wide or fisheye lens.

Step 2

Find the right forest. "You're looking for lots of tall, straight trees that branch out only at their tops," says van Hannen. "When you've found the right forest, locate the tree with the biggest trunk." Look for a wide-diameter, textured trunk that can anchor your composition. Take a series of test shots, moving around the tree, to find the forest's "best side."

Step 3

Wait for a calm day. For easy HDR compositing, you want a subject that remains stationary between exposures. Even a little wind can sway limbs or foliage, making a blurry mess of your composited image. His HDR software of choice: Photomatix.

Step 4

Use the tree as a support. When shooting, set a small aperture for enough depth of field to render the tree trunk sharp from foreground to middle ground, and brace your camera against the tree. Van Hannen actually hugs the tree to press the camera tightly against the trunk, staying careful not to include himself in the shot.

Final Step

Crop for straight lines and symmetry. Van Hannen shot with a fisheye lens, and to remove the linear distortion that occurred along the frame edges, he cropped into the shot on all sides.

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THE BEST OF THE BEST

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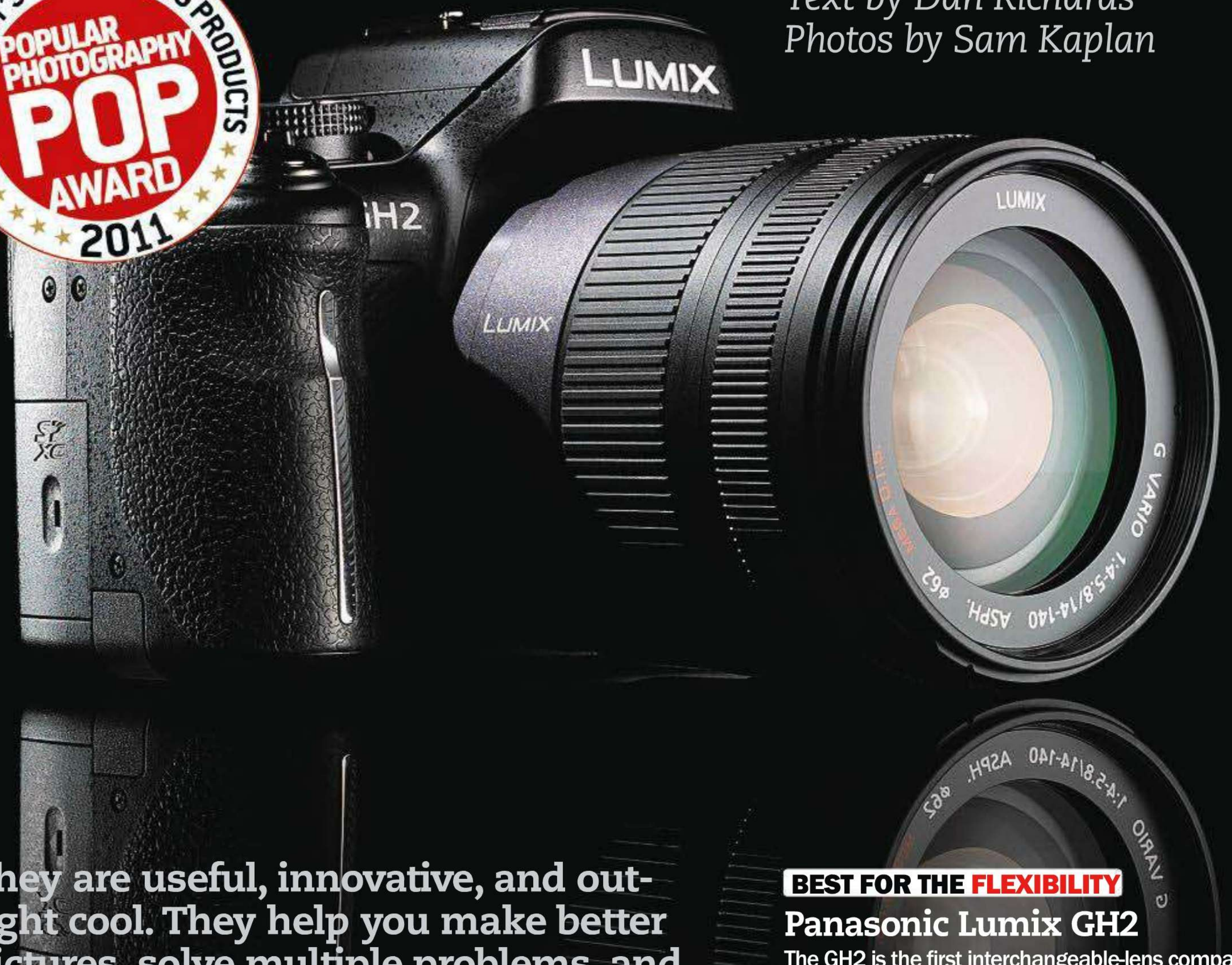
Text by Dan Richards
Photos by Sam Kaplan



They are useful, innovative, and outright cool. They help you make better pictures, solve multiple problems, and put more fun in your photography. They are Photography's Outstanding Products for 2011, and every one has been lab and/or field tested by our thoroughly picky editors (our reject list is long). And we have a strong feeling you will love them as we do.

BEST FOR THE FLEXIBILITY

Panasonic Lumix GH2

The GH2 is the first interchangeable-lens compact (ILC) to achieve an Excellent overall image quality in our tests—no mean feat given that it uses a Micro Four Thirds sensor that's about 40 percent smaller in area than the APS-C sensors found in cameras it outperformed. The touchscreen interface is one of the best we've used, but if you hate touchscreens, just turn it off and use the many dedicated buttons and well-organized, customizable menus. **($950, street, with 14–42mm f/3.5–5.6 G Vario lens)**

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BEST FOR THE STUDIO

Paul C. Buff Einstein Monolight

This studio strobe is unusually light (4.31 lb) and compact for a 640 Ws monolight, has an unusually bright (250-watt) modeling lamp, and can be dialed down to an unusually low power (2.5 Ws) by way of—yes—an unusually short (1/13,000 sec) flash duration. This fan-cooled unit has a built-in optical slave, and can fire up to 10 times per second. **($500, direct; www.paulcbuff.com)**

BEST FOR THE FASHIONISTA

Manfrotto Lino Pro Field Jacket

Ever seen a photo jacket that you wouldn't be embarrassed to wear around town? We have: this insulated, waterproof, wind-resistant Lino model, in stylishly slimming matte black. The larger pockets include removable protective-padding inserts, can be expanded to hold lenses or flash units, and can be contracted via zippers to function as traditional coat pockets. (**$500, street)**

BEST FOR THE PRINTMAKER

Epson Stylus Pro 4900 Printer

You'll need a helper, and preferably two, just to lift and position this 115-pound monster. But it produces gorgeous wide-gamut prints up to 17x24 inches on cut-sheet paper, and up 17 inches wide on roll-feed paper—and does them fast. The 11 ink tanks have a very high capacity at 200 milliliters. The matte and photo black ink tanks switch automatically, and a special black & white driver helps make neutral or toned monochrome prints. **($2,500, street)**

BEST FOR THE GEAR-LUGGER

Gura Gear Kiboko 30L Backpack

Designed by photographers while on safari in Africa and made of tough, lightweight fabric of the sort used in America's Cup sails, this 4-pound pack can hold lenses up to 800mm, and pro-level DSLR or medium-format bodies. The butterfly-opening front flaps keep you from exposing your equipment to the elements, and the backpack straps tuck in and stow. **($429, direct; www.guragear.com)**

BEST FOR THE B&W LOVER

Nik Silver Efex Pro 2

Fans of our Fix It Fast department know that this has become our go-to program for monochrome conversions. It's easy and fun, as well as being powerful and flexible. Besides being a faster and more elegant converter than the ones in Photoshop, its U Point Technology lets you easily apply different amounts of tone, contrast, and other effects to specific areas of the image. **($200, direct; www.niksoftware.com)**

BEST FOR THE BUSY EDITOR

Adobe Photoshop Lightroom 3

Lightroom 3 was introduced mid-2010, but we wanted to spend more time working with it before handing out an award. In the meantime, Adobe has been adding lens profiles to its distortion correction engine, so now tons of lenses are supported. The highly improved and intuitive import process, vastly better noise reduction, and tight Photoshop integration make this a POP winner. **($299, direct; www.adobe.com)**

EPSON
SILVER EFEX PRO 2
ADOBE PHOTOSHOP LIGHTROOM 3
gura gear

BEST FOR THE LED USER

Rosco LitePad Axiom

Unique LED lights with an efficient diffusion panel, LitePads are available in tungsten or daylight white balance in six sizes from 3x6 to 24x24 inches. The illumination is quite soft, making it suitable for head shot stills or talking head videos (but not for larger or nonstationary subjects). At less than 1 inch deep, they can be used in cramped quarters, run cool, and use minimal power. **($560, street, for 12x12-inch size)**

BEST FOR THE ZOOMING PRO

Canon 70–200mm f/2.8 EF IS II USM

The long-awaited successor to the original pro workhorse telezoom, version II may well be worth the hefty entry fee if you are a serious photographer who needs fast, sharp, image-stabilized glass in a barrel with weapons-grade build and weather sealing. The newer lens is a substantial optical upgrade over version I, with improvements across the board in SQF, light falloff, and especially distortion control. IS tested out to up to 4.5 stops extra handholdability—which ties the top IS test results. **($2,380, street)**

BEST FOR THE FLASH FAN

F.J. Westcott Magic Slipper

This past year we have seen this item used by several of our pro contributors—it's a near-universal adapter for using shoe-mount flashes in studio setups. Designed by photographer Bruce Dorn, the Slipper has a cold shoe for a flash, a rotating adapter ring for Westcott softboxes—including the 7-foot Octabank—a heavy-duty tilting lightstand bracket, and a lightstand stud. One caveat: The adapter ring is incompatible with many non-Westcott softboxes. **($230, street)**

BEST FOR THE SPACE-LIMITED

Velbon UT 45L

The tripod for people who hate tripods, the UT 45L is the most compact tripod (11.6 in., folded) that reaches what's considered eye level (61.6 in.). The single-twist leg locks make for quick setup and breakdown, and the legs splay out for ground-level use. The included PHD-42Q head has a quick-release mechanism, two bubble levels, and pan/tilt controls with separate locks. While it's specified for a 6.6-lb load capacity, we wouldn't push it that far, and for maximum steadiness, it would be best to use it with ballast. **($150, street)**

BEST FOR THE HIKER

Lowepro Photo Sport 200 AW backpack

We call this a solid hiking pack because it's almost literally true: A rigid plastic back panel acts something like a hiking frame. Made of water-repellent ripstop fabric, this lightweight (2.9 pounds) pack has enough room for a DSLR with integrated vertical grip with lens attached, plus an additional lens. Side access to the well-padded camera compartment means you don't have to take the bag off to get your camera or change a lens. It has tripod straps, pockets and compartments galore, and a built-in waterproof rain cover. **($200, street)**

ULTRASONIC
70–200mm
70 100 135 200

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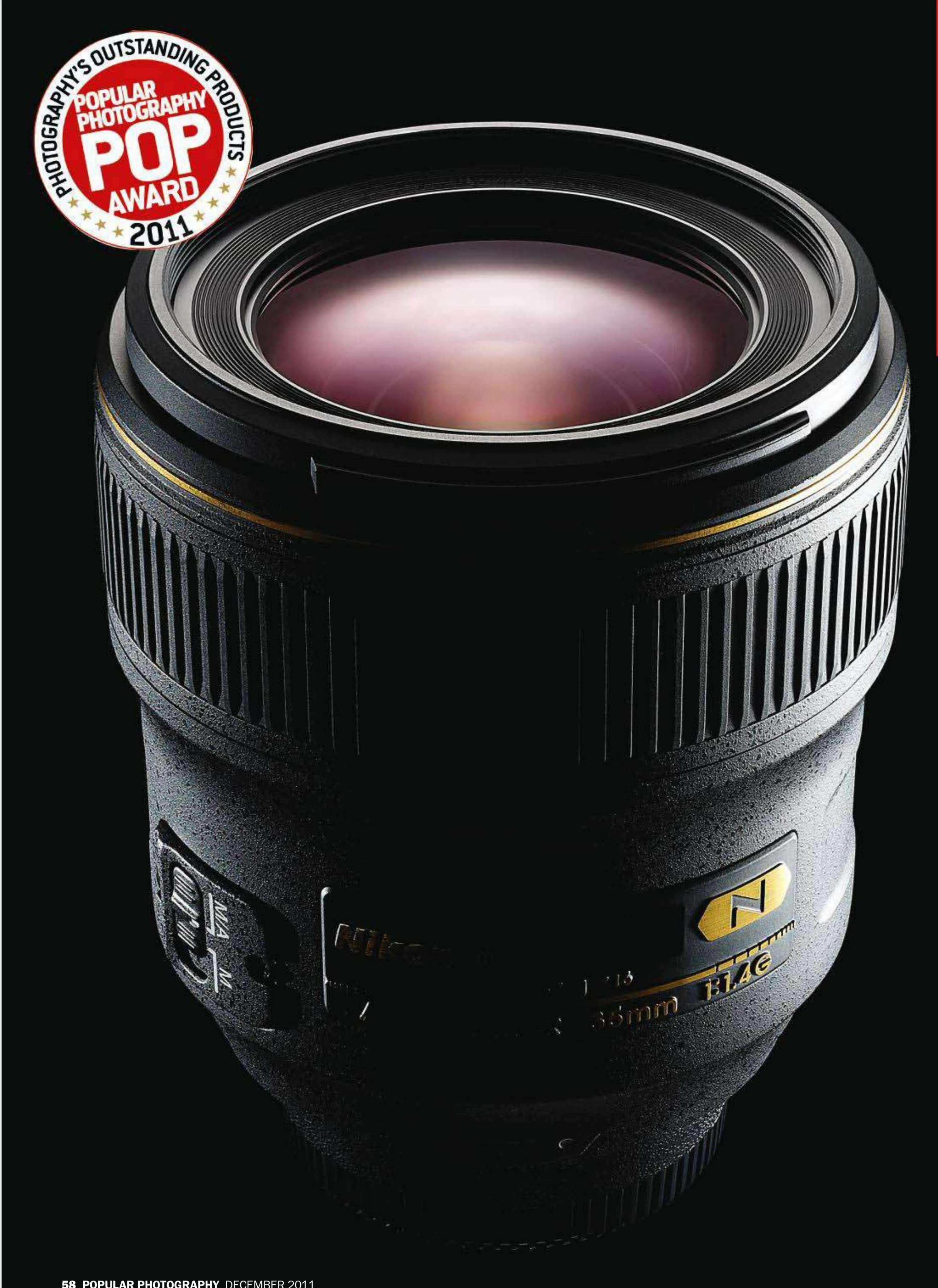
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M/A
M
N
1.4G
35mm

BEST FOR THE WEDDING

Nikon AF-S 35mm f/1.4G ED Two huge reasons to spring for this lens: Available-light candid shooting and wedding work where you want defocused backgrounds—not to mention brides by candlelight. This beautifully made optic proved to be one of the best high-speed wide-angles we've ever tested, and it has fast and silent autofocus. **($1,620, street)**

BEST FOR THE PEN PAL

Olympus Pen E-PL-series accessories

The Penpal PP-1 attaches to the camera accessory port and uses Bluetooth to send photos from the camera to a smartphone, computer, or other Bluetooth-enabled device. The Macro Arm Light MAL-1 also attaches to the accessory port, and works off the camera battery to power two LED lamps on 6.7-inch goosenecks that can be positioned every which way.
(PP-1, $55, street; MAL-1, $50, street)

BEST FOR THE SPEED FREAK

Sony Alpha 77

With this transmissive-mirror camera, the electronic viewfinder officially came of age. The 2.35-million dot OLED finder is so clear, and redraws so rapidly, that many users at first think it's an optical prism finder. Shooting speed—up to 12 fps—superfast and sensitive AF, Excellent overall image quality from the 24.3MP sensor, beefy construction, and more add up to an obvious POP winner. **($1,400, street, body only)**

BEST FOR THE FISHEYE FUN

7.5mm f/3.5 Rokinon Fisheye MFT The sole full-coverage fisheye lens in a Micro Four Thirds mount, this Rokinon takes in a breathtaking, wildly curved 180-degree angle of view. Like other Rokinons we've tried, it makes up for its no-frills operation (manual aperture and focus only) with a solid build and excellent finish. And it can make for wackedelic video. **($300, street)**

BEST FOR THE TRIO FLASHER

Quantum FreeXWire QLink If you're a Nikon or Canon shooter into the Quantum Trio flash system, this accessory allows full TTL wireless flash control via radio signal rather than the more limited IR control of those DSLRs' systems. You get far greater range plus the ability to transmit in bright light, around corners, and through walls. **($130, street)**

BEST FOR THE OUTDOORSY

Pentax K-5

What a body! Heavily sealed against dust and moisture, the K-5 was literally blizzard-tested by our staffers and it passed splendidly. Its magnesium-alloy shell is covered in very grippable rubber and is nicely contoured for human hands. The 16.3MP K-5 is also Pentax's first K-series DSLR to achieve an Excellent overall image quality rating, maintaining Excellent resolution up through ISO 12,800. **($1,500, street, body only)**

BEST FOR THE CONNOISSEUR

Zeiss 50mm f/1.4 Planar T* This wonderfully sharp, fast normal, with its buttery smooth, finely geared manual focus, says "video" loud and clear. With low distortion and almost no light falloff, it no doubt will appeal to traditionalist still shooters. Both groups will appreciate the superb construction—including the metal lenshood—and excellent markings. **($725, street)**

BEST FOR THE PRIME MAVEN

Sigma 85mm f/1.4 EX DG HSM In our test shootout of four top-notch 85mm f/1.4s last spring, this Sigma entry edged the other competitors by a hair in SQF and was also the least expensive by far. Plus it's available in the most lensmounts. The usual Sigma attention to detail includes a lenshood that comes with an adapter to lengthen it for use with APS-C-sensor cameras—neat! **($970, street)**

BEST FOR THE TRIPOD TOP

Manfrotto MH055M8-Q5 tripod head

Shooters who do both stills and video can have a head problem: The three-way pan/tilt head that's right for video doesn't allow the fast composition that a ballhead does, but there's no way you're going to get smooth video panning with a ballhead. This Manfrotto is two heads in one: A swich toggles between ballhead operation and fluid pan/tilt movement. Made of light magnesium, it has adjustable friction, a quick-release shoe, a panning lock, and a removable panning handle that reverses for right- or left-handed operation. **($350, street)**

BEST FOR THE PRICE

Canon EOS Rebel T3i

You're probably sick of hearing about "the greatest Rebel yet," but sorry, Canon keeps turning them out. This latest greatest boasts an 18MP sensor that turned in Excellent overall image quality in our lab tests, a fine-grain 1.04-million dot LCD that tilts and swivels, and—an important first for a Rebel—wireless control of TTL flash units via the built-in unit. Plus you get fast and sensitive autofocus, ISO speeds to 12,800, and well-thought-out controls. The articulated screen comes in handy for video, which this Reb captures at full HD 1920x1080p30, although autofocus is iffy at best during video. Add it all up and we say it's the best DSLR you can get for $900 with lens. **($900, street, with 18–55mm f/3.5–5.6 Canon EF-S IS lens)**

BEST FOR THE STYLISH

Fujifilm FinePix X100

Quirks, it has a few, but then again, you need only pick up this jewel-like camera to overlook them. Designed like a classic rangefinder (and you know which one), the X100 has two viewfinders in one: a crystal-clear optical bright-frame finder that can switch in a wink to a fine-grain electronic viewfinder that provides 100-percent framing accuracy at any distance. The fixed 23mm f/2 (35mm equivalent) lens, with an aspheric element plus high-refractive-index glass, showed virtually no light falloff and without a doubt contributed to the camera's fine showing in our resolution tests. Overall, it earned an Extremely High image quality rating. About those quirks: Too many controls are lost in menus, and the camera will capture only JPEGs (not RAW) at ISO 100 and 12,800 (huh?). But it's so pretty... **($1,200, street)**

MOVIE
PHOTO
Canon
CANON LENS EF 50mm 1:1.4
LENS MADE IN JAPAN
EOS
T3i

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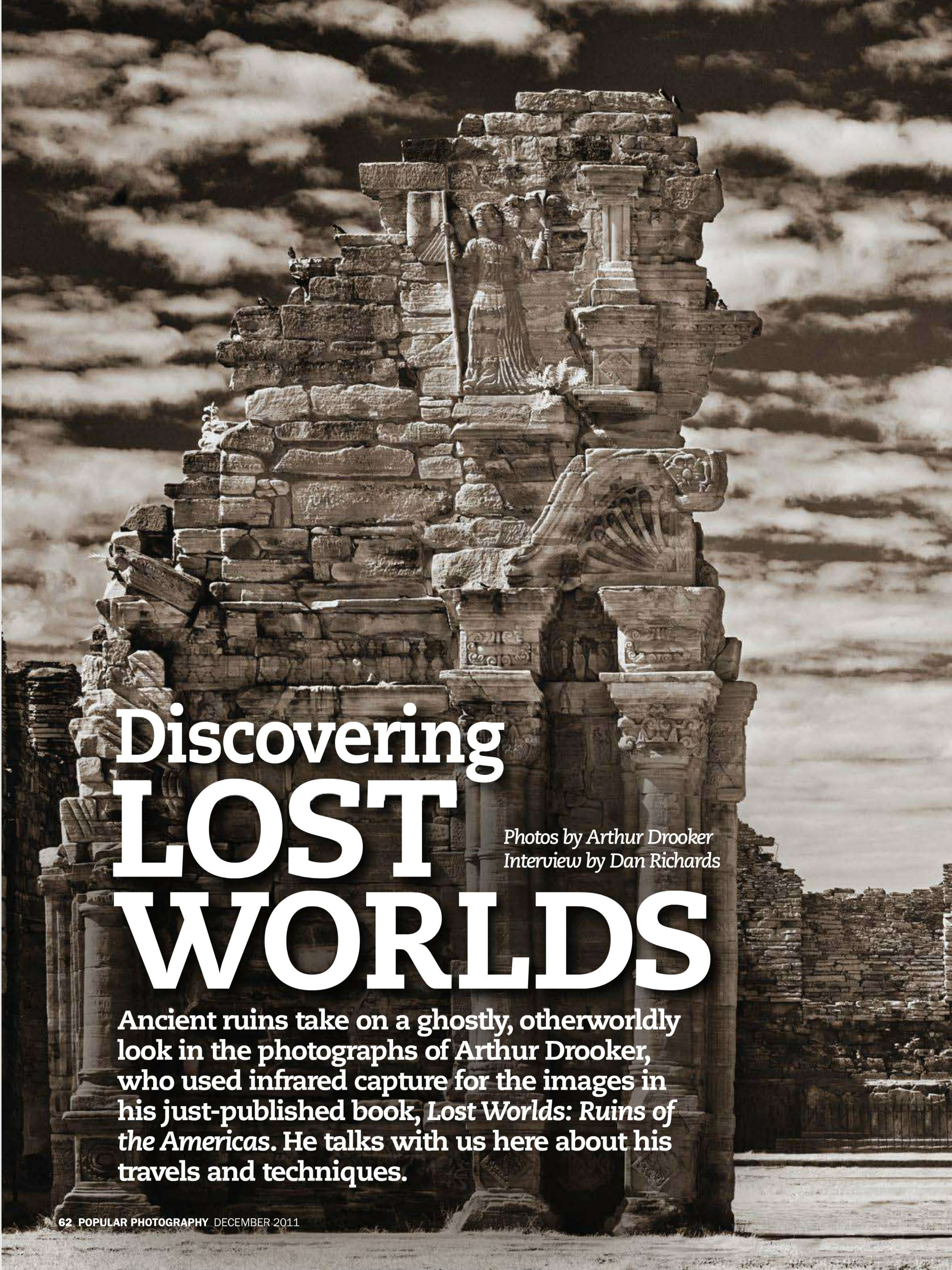
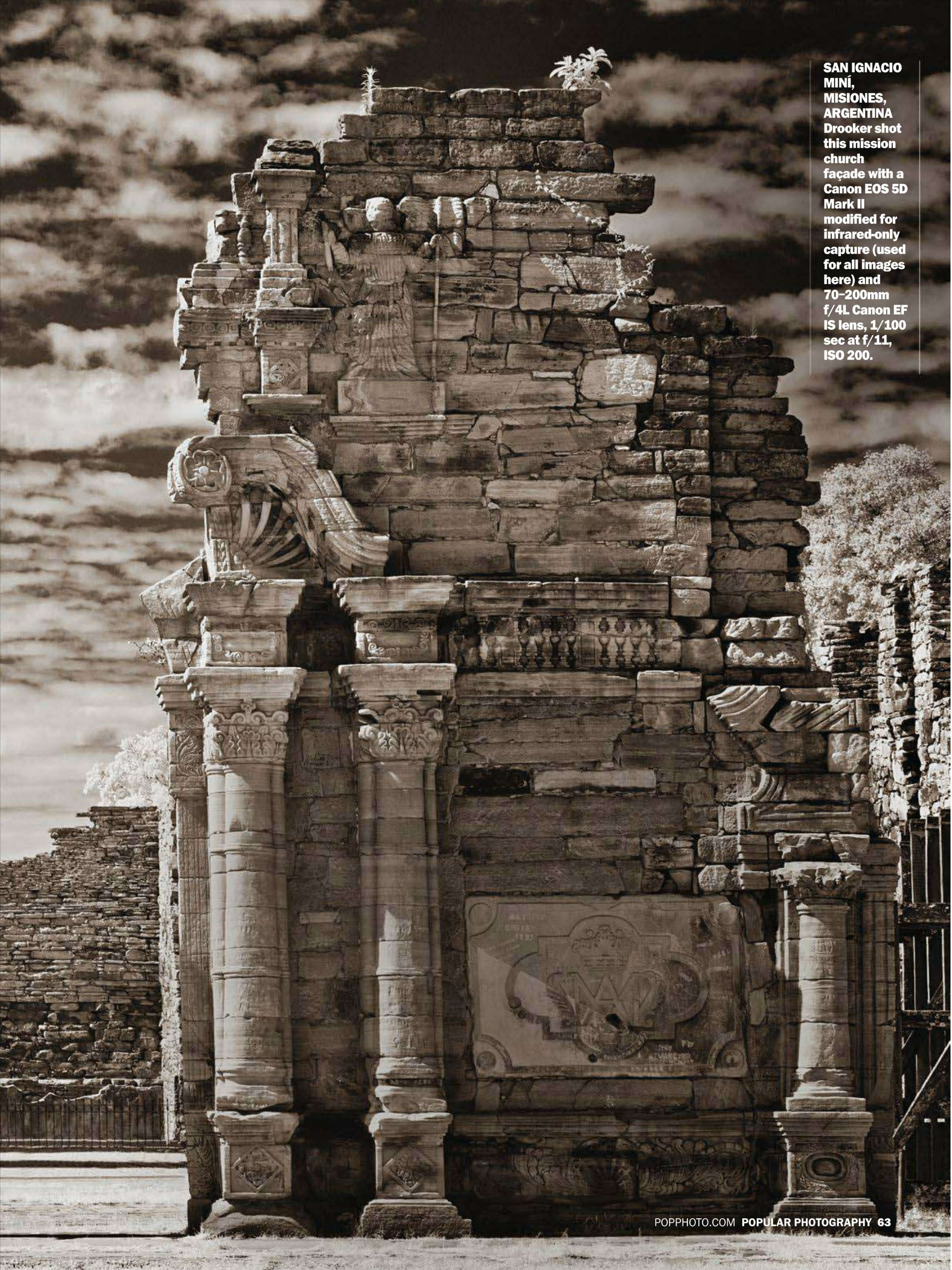
FUJINON ASPHERICAL LENS f=23mm 1:2 SUPER EBC



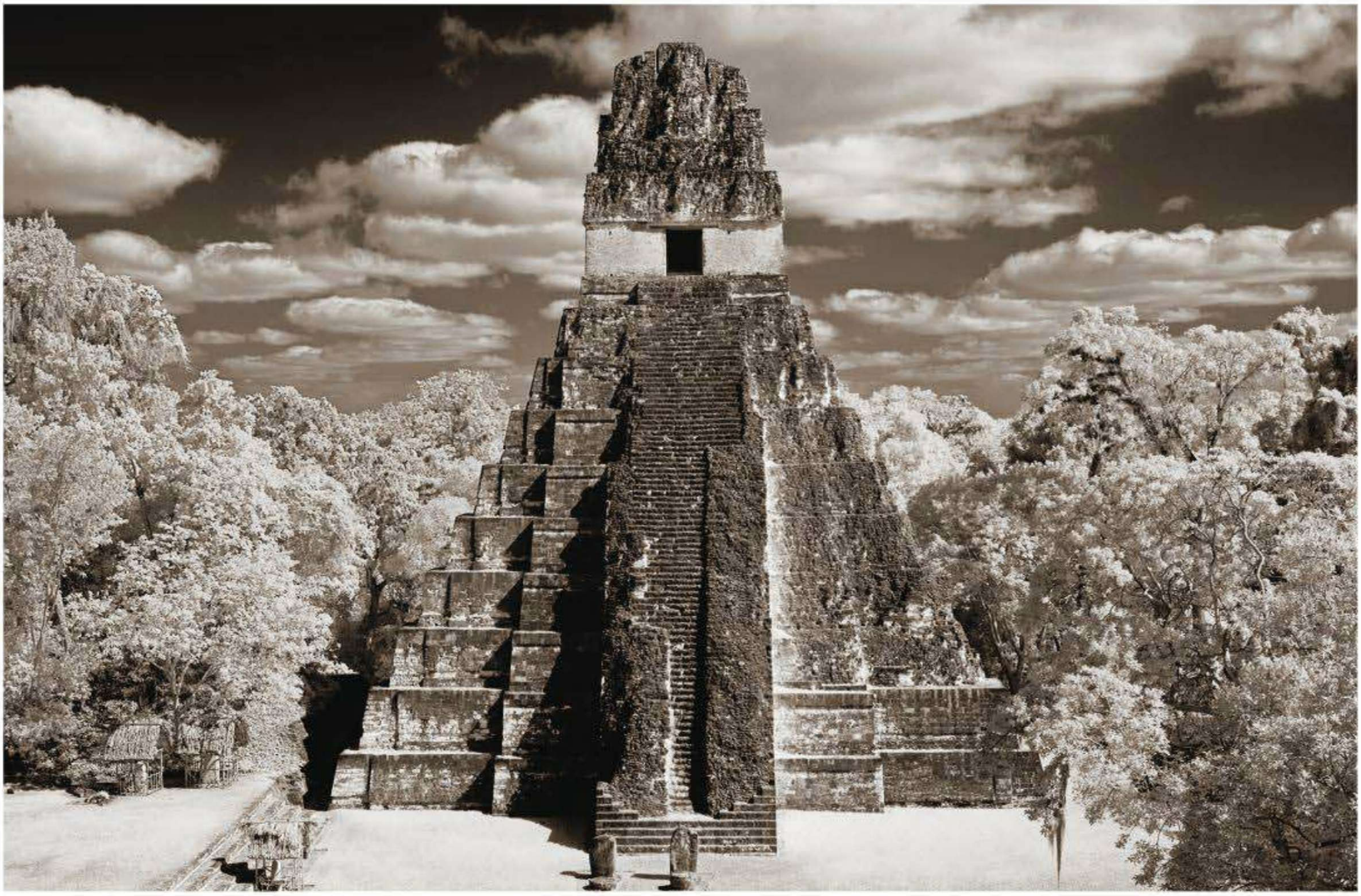
Discovering LOST WORLDS

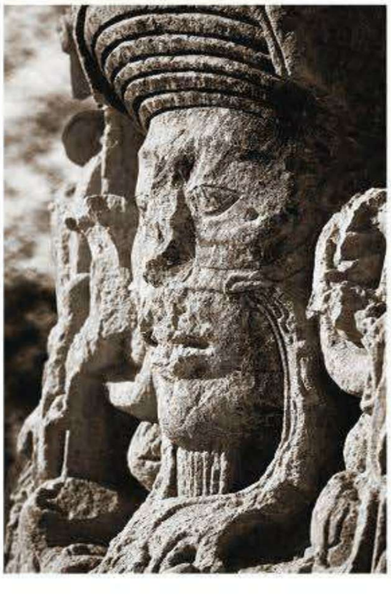
Photos by Arthur Drooker
Interview by Dan Richards

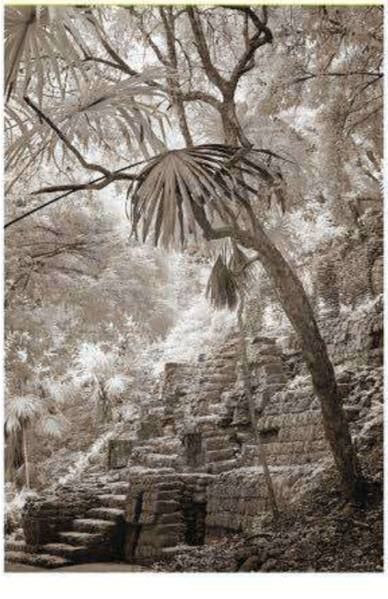
Ancient ruins take on a ghostly, otherworldly look in the photographs of Arthur Drooker, who used infrared capture for the images in his just-published book, *Lost Worlds: Ruins of the Americas*. He talks with us here about his travels and techniques.



SAN IGNACIO MINÍ, MISIONES, ARGENTINA Drooker shot this mission church façade with a Canon EOS 5D Mark II modified for infrared-only capture (used for all images here) and 70–200mm f/4L Canon EF IS lens, 1/100 sec at f/11, ISO 200.







TEMPLE OF THE GREAT JAGUAR, TIKAL, GUATEMALA Drooker used a 24–70mm f/2.8L Canon EF lens to make the shot at 1/200 sec and f/11, ISO 200.

STELA B, COPÁN, HONDURAS Far left, 70–200mm lens, 1/320 sec at f/5.6, ISO 200.

MUNDO PERDIDO, TIKAL, GUATEMALA Same lens, 1/30 sec at f/8, ISO 200.

How did you take up photographing ruins?

I began my journey in ruins photography in 2004 with a trip to Angkor Wat in Cambodia. Something about those old temples entwined in the jungle wouldn't leave me alone—I had to go there. I was so taken with these ancient structures that I set out to find ruins and preserve them using infrared photography.

Which came first for you, the ruins or the infrared?

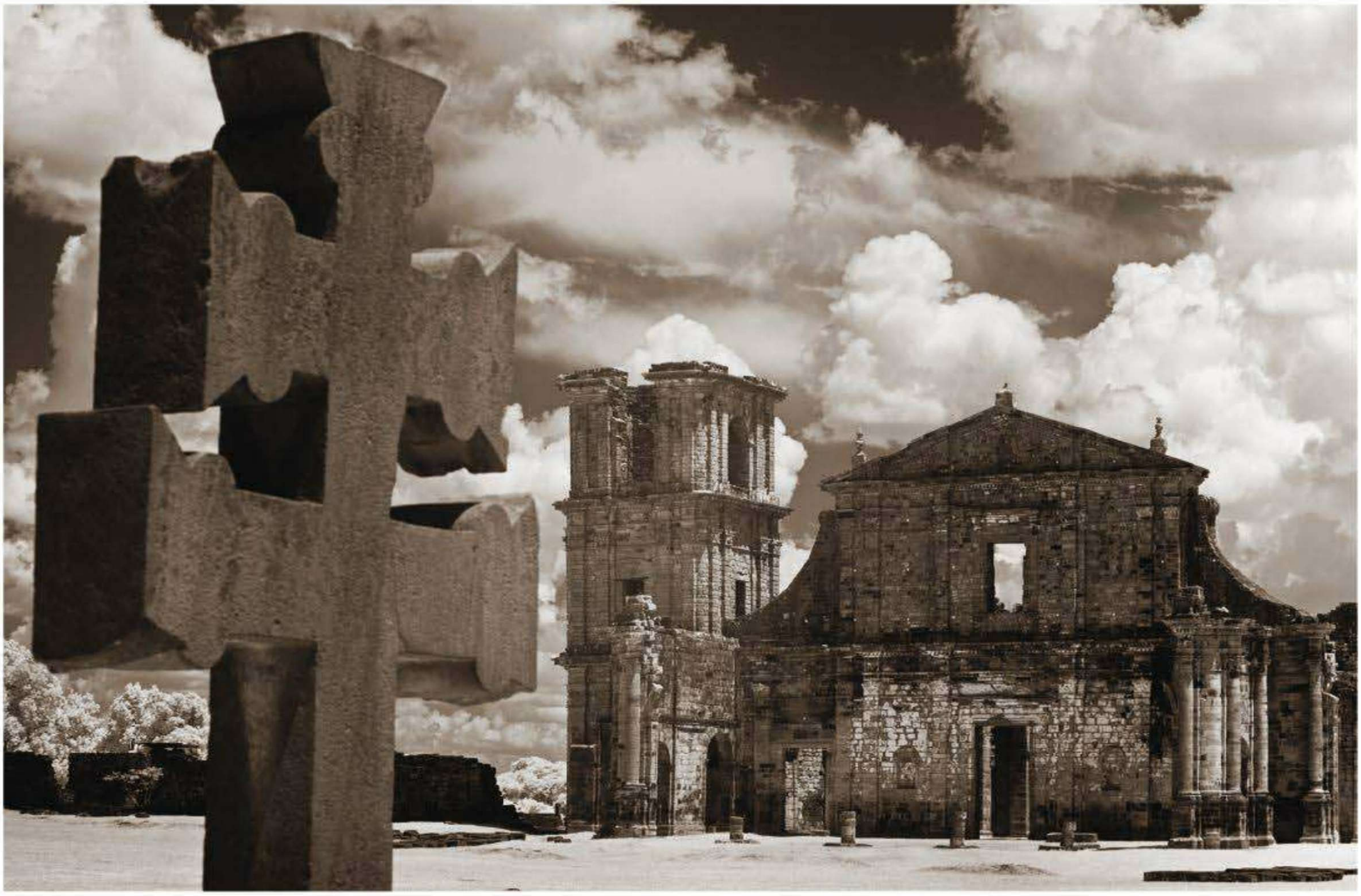
I started shooting infrared specifically to photograph ruins. I find the subject and the format perfectly suited to each other. Ruins are mysterious and otherworldly, and so is the infrared effect.

You worked with IR film before digital. How has digital changed things?

Digital has made shooting infrared much easier. There's no red filter, no back-focusing, and no changing bags to deal with; this streamlines the whole process. Another advantage to shooting digital infrared is being able to see results instantly, which removes the guesswork and finger-crossing that always accompanied infrared film. However, some things don't change—shooting digitally hasn't changed how I evaluate a scene.

What gear do you use?

I currently use a Canon EOS 5D Mark II, modified by LDP in New Jersey [www.maxmax.com] to



SÃO MIGUEL DAS MISSÕES, RIO GRANDE DO SUL, BRAZIL Drooker used his 70–200mm lens to get telephoto compression of the foreground cross against the background ruin. Exposure was 1/100 sec at f/11, ISO 200.

make only infrared images. I use two Canon lenses: a 24–70mm f/2.8L and a 70–200mm f/4L. I like to travel light. I rarely, if ever, use a tripod; I shoot hand-held.

That's quite a commitment, getting a 5D Mark II modified for IR only.
I first modified a 10D several years ago when I found you could convert digital cameras to take nothing but infrared. From there I moved up to a 5D Mark II. It is a commitment, but with the better technology and more megapixels available, I just had to step up. The better resolution also allowed me to make larger prints. With the 10D I would be reluctant to go any bigger than 16x20; with the 5D Mark II I can go to 30x40.

You note that the ruins need to be suitable for infrared rendition. What are your criteria?
They must be situated in nature to get the full effect. Leaves, grass, and overgrowth reflect infrared light, while bricks, stone and wood—the stuff of ruins—do not.

Part of a classic IR look depends on blue skies, puffy clouds, and sunlight on healthy green foliage. Did weather constrain your work?
Weather is certainly a factor. While shooting for *Lost Worlds*, I traveled to certain areas during their dry seasons to ensure that I'd have sunny days. I joke that when I'm shooting on location, I'm just as much a weatherman as I am a photographer. I constantly check forecasts. Sunny is definitely good. Sunny with some clouds is even better!

Another of your criteria is that the ruins have to be preserved as historic sites. What sort of sites *wouldn't* you photograph?
Abandoned buildings, dilapidated barns, or things like the Ninth Ward in New Orleans after Katrina. I don't want to put any of that

CONTINUES ON PAGE 128

More Info

CONVERSION of a DSLR to dedicated infrared capture begins with the removal of the infrared-blocking filter in front of the imaging sensor. This is then replaced with an infrared-passing filter, typically a 715 nm or 830 nm, which blocks most or nearly all visible light, respectively. Because this filter is over the sensor, viewing and focusing through the optical prism viewfinder is unrestricted; using such a filter over the lens would make viewing with the optical finder impossible.

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Print It with the Pros

Kodak's NexPress SE3000 Digital Color Press prints on plastics, synthetics, linen, and paper at up to 14x26 inches. With the Baum Pilefeeder, it spits out 131 letter-size pages per minute.

Great photographs require great prints, but you might not always want to—or be able to—make them at home. Want to try outsourcing your printing? Here are eight tips for picking the best lab and preparing your files to get great results. *By Debbie Grossman*

PRINTING AT HOME can be a good thing, but sometimes it's best to let someone else do it. Maybe you want to make a whole bunch of 4x6 prints, or you need a print larger than your home printer can produce. Or maybe you have an image you love, but you can't seem to make a print that matches your vision of it. A lab, whether accessed online or in person, can even obviate the need for a printer of your own; if you don't print much, it can be more economical to have your prints made for you.

There are lots of labs to choose from, ranging from consumer-friendly, automated online systems all the way up to high-end labs where you can work one-on-one with in-house master printers. The higher up the scale you go, the more control and, most likely, the more printing options you will have. And, of course, the more you will spend.

THE HUMAN TOUCH Left: Kole Montross, a retouching artist in Icon's fine-art department looks over a restoration project for a client. Right: One of the print specialists at AdoramaPix inspects prints for a wedding shooter.

BONNY DIADHIOU; GABE PALACIO PHOTOGRAPHY

1 Find the right lab for you.

Before you print, decide which kind of lab you will need. You may even want to work with several, depending on your requirements at the time: It could be that you'll use a consumer-friendly lab, such as Mpix, for quick, small prints; order your bigger prints from a site like AdoramaPix that will allow you to download profiles; and save your big, serious prints for a master printer such as the Icon lab in Los Angeles. Or you might stick with a do-it-all site such as Kodak Gallery, which takes care of color management for you, makes prints from small to large (including posters), and also offers the typical mugs and mousepads you'd expect from an online lab.

If all you need is big, an online lab might do it. But if you choose to work in person with a high-end lab (most major cities have one), you'll get hands-on guidance the likes of which you could never match working remotely. Says Bonny Diadhiou of the Icon, "It takes about five people to make one beautiful print. There's no just pressing a button—it's even hand-trimmed. There's so much love and labor that goes into making a single print."

A custom lab like this will make an appointment with you to sit in a gray-walled room with optimized lighting while a seasoned printer works on your image on a color-correct monitor; the printer may even rework your RAW file if need be.

If you plan to begin a long-term relationship with a given lab, try calling customer service and see how long it takes to get a human on the phone. Ask for its policy on unsatisfactory print quality. Find out if the lab takes rush orders. Consider its output sizes: Is there enough variety? How big do they go? And finally, of course, consider the cost. Is the lab a good value for the money? Bear in mind, though, that some pro-level print services such as MpixPro require that its clients make at least some portion of their income from photography to access the professional site.

2 Calibrate and profile your display.

We've said this before, and we'll say it again: A good-quality, calibrated, and profiled display is essential for making great prints, particularly if you plan to do any image editing at home. When you standardize your monitor's color and contrast using a calibration device, such as X-Rite's i1DisplayPro or Datacolor's Spyder3Pro, you can have more confidence that the edits you make to your images will reproduce in prints the way you expect them to.

Labs that cater to more digitally adept photographers, such as AdoramaPix, will often allow you to download profiles for the printer/paper combinations they offer. If your at-home setup is color-managed, and you are comfortable using those profiles to soft-proof and preview your result in Adobe Photoshop, you can take on the job of color correcting your images yourself. You may even be able to take your setup for a hard-proof trial run: MpixPro's service, for instance, will use your images to make five test prints for you to see how well the systems match.

3 If you can't calibrate, let the lab do the color correcting.

Most labs catering to enthusiasts, advanced amateurs, and even pros will fix the color for you, so you don't have to worry about it. This is a good option if you don't have a calibration device, or if you are simply not so great at making color corrections. The benefit of letting the lab handle it is that its technicians are intimately familiar with the vagaries of its printers and papers.

Consider a service like Kodak Gallery's Professional Prints option. When we asked Mark Cook, vice president of products for Kodak Gallery, about color management, he replied, "There's a setting where you can turn it on or off. Color management is done by a human." In other words, this is not the service for those who want to manage their color with soft-proofing and profiles. If you want your color or exposure corrected before your prints get

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SPECIAL ORDERS Mpix, MpixPro, and Miller's Professional Imaging, all part of the same family-owned company based in Kansas, offer different levels of products and services to different types of clients. At left, a poster-sized image comes out of the printer. At right, a technician applies a surface layer to a photo by hand.

STEVE HEBERT (2)

made, a Kodak technician at the lab will make the call for you.

4

Set the right color space.

Can your lab accept Adobe RGB or Pro Photo RGB, or must you submit your files in the smaller-gamut sRGB color space? Similarly, consider file type and size. Some labs have file-size limits, and some accept only JPEGs, not TIFFs.

5

Pick your medium.

Unless you go for a high-end lab, your prints probably won't be made on inkjet printers. Instead, you'll get what's commonly called digital c-prints. These are made using a chemical process in which your images are projected onto photo paper using a series of lasers. This affords different paper options: Lots of labs offer Kodak's papers such as Endura, a matte surface that works best for portraits, or Metallic, which works well when your shot includes metal, water, or sky.

However, high-end labs often print with inkjet machines as well and can help choose the best method and medium for output. The Icon, like many such professional printers, offers more than 25 kinds of paper, and can print using a wide variety of methods. They can also print extremely large—Icon recently had a job making prints nearly 60 inches wide by 15 feet long. Try ordering a print that big online.

Finally, consider archivability. How long do you want your prints to last? According to Diadhiou, black-and-white pigment-based inkjet prints can last as long as 200–300 years, and color 100–200, depending on how they're stored and displayed. A digital c-print, however, probably won't last more than about 60 years.

6

Order your own test strips.

If you're planning to have a bunch of images printed, but you're not sure of the best paper type to suit the pictures, order test strips. Use your editing software to gang a bunch of them up on a single big print, and then have it made on various papers to compare how the same set of images look on each. Or, if you're not sure how much contrast or brightness will work best on the paper you've chosen, send out a similar big print with five or six variations of the image on a single piece of paper. Once you figure out what works best, order away.

7

Find out about black-and-white.

If you're working with a lab that can make inkjet prints, you'll have more paper options than you would with digital c-prints. For instance, you'll likely be able to print on fiber-based papers in a range of finishes from matte to glossy, which can give you a more traditional darkroom look. You'll also be able to send RGB files that contain some tone.

Labs that make digital c-prints sometimes offer printing on true b&w resin-coated paper; both Kodak Gallery and Mpix are two examples. But it is essential that you find out what kind of b&w file your lab recommends. Some labs prefer to do the conversion for you using their own software, others request you send a grayscale (rather than an RGB) image. If you don't give the printer what it expects, you could end up with strange color casts you don't want, or a neutral image when what you were expecting was a nicely toned one.

8

Consider your image's aspect ratio.

If your photo doesn't fit the same dimensions as a lab's print size, its technicians—or automated program—may do the cropping for you. To control this yourself, you can crop your own image before uploading. Or, to get the aspect ratio you want at the largest size, open the image in your image editor, then make a white border around your shot so that the total image area, including the border, matches the print size you're ordering. If you want to display your print without the border, you would then need to trim it yourself or frame it using a mat that covers the border.

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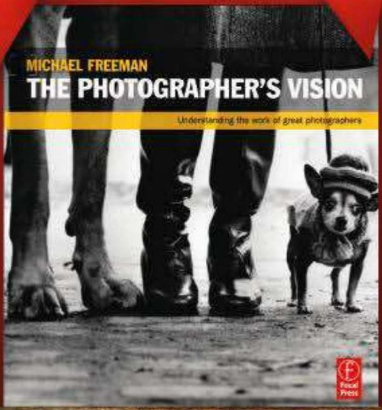
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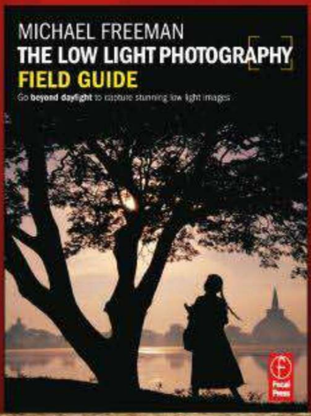
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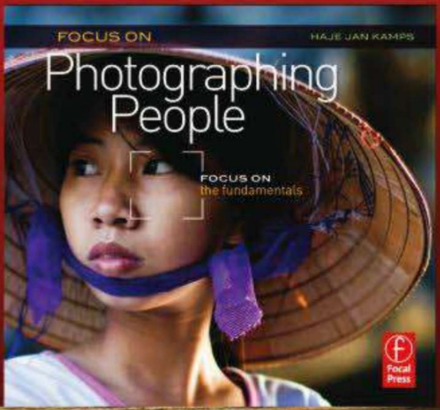
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The Art of the Display

VIKTOR BENTLEY

You have big, glorious prints of your favorite pix—now, what do you do with them? We spoke with a handful of widely exhibited photographers, professional printers, and others to help you get a handle on your many options for displaying them to their best advantage.

By Theano Nikitas

BILLIONS OF images reside on hard drives around the world, electronically shared and viewed every day. But it's still great to "get the images off the computers and back on the wall where we can appreciate them," says Eric Luden, founder and owner of Digital Silver Imaging, a fine-art photo printer based in Belmont, MA. That means not just printing, but deciding how to display your photos in galleries and other public and private spaces.

Your choice is based, in large part, on aesthetics—both yours and the people you hope will buy your prints. "It's all personal preference," says Peter Berberian, co-founder of professional custom printer Gotham Imaging in New York City.

That may mean not printing on paper at all. Describing display options for both paper and unconventional prints, Larry Abitbol, president of Bay Photo Lab, reports that the hottest trends include ready-to-hang prints on metal, frameless mounted prints grouped together (called CollageWalls), canvas prints, and traditional framing.

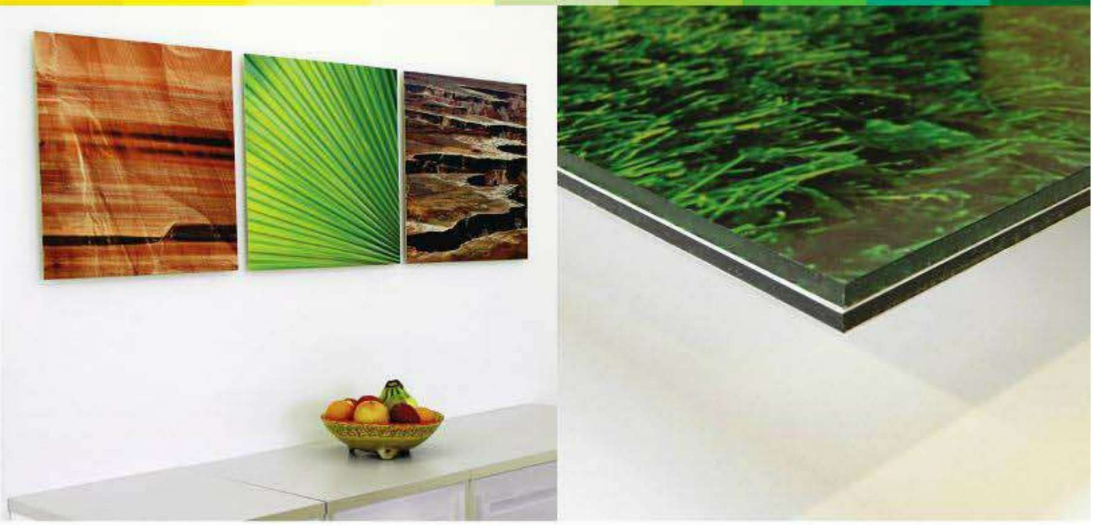
More practical criteria also come into play. These include your budget, whether or not the finished pieces have to be shipped, and where—and for how long—the photo will be on the wall. If you're using a custom lab (see "Print It with the Pros," page 67), be sure to discuss your ideas with your printer before making a final decision. Most companies like Gotham Imaging, where everyone has a background in photography, will gladly make suggestions that will best fit your practical and aesthetic needs.

Here are some options.

Matting and Framing

A simple matted and framed print never goes out of style. Sure, you could match your frame to your decor, but, particularly for monochrome images, a white mat with a black frame provides a classic presentation. "A simple black frame in ¾ to 2½ inches is still very popular," Abitbol says.

PRINTS MOUNTED TO ALUMINUM BY BUMBLEJAX, DEFOREST SHOTWELL (PHOTOS); ACRYLIC FACE-MOUNTING BY BUMBLEJAX



◄ **FALSE FRAMES** Fine-art photographer Victor Bentley used white-bordered prints to emphasize his images without using actual frames (left) for a show at the Table Dada Gallery in Antwerp, Belgium.

▲ **FRAME-FREE MOUNTING** Printer/framer BumbleJax mounted three photos by Deforest Shotwell (above, left) to 0.125-inch aluminum and overlaid them with a matte laminate. In close-up (top, right): a print BumbleJax face-mounted to a clear acrylic sheet and backed with white Dibond.

Framed, No Mat

Fine-art photojournalist Lyle Owerko, whose work is shown at a number of galleries in the U.S. and abroad, prefers white box frames for his unmatted images of the Samburu tribe of Kenya and his *Boombox* series. "This technique really allows the work to leap off the walls and not be overwhelmed by the display device," he says. "It also helps enhance the artwork as an 'object' much more than as a printed image. I want the images to really engage the viewer and want the least obstruction possible; hence my shows tend to be very simple and forthright in visual dialogue."

For his recent international exhibition, *destroyed*, musician and photographer Moby also presented unmatted images in white box frames, framed by Finishing Concepts Inc.

Frameless and Matless

For a relatively affordable yet attractive display option, Luden suggests flush-mounting an image on a 0.75-inch board. This also lets you display a large print in a smaller space. Images can be left as is or specially coated to withstand UV rays and other damaging elements. "When you put a 2½- to 3-inch mat around a 16x20-inch print, plus a frame, you're talking more real estate," says Luden. "You can print a Stand Out [flush-mounted print with a band of black, white, or stainless edging] and put it on the wall without having to worry about space and expense."

One of today's main trends for photos? Face-mounting, in which the front of an image is coated with a clear adhesive and attached to a piece of acrylic glass (like Plexiglas), backed with a sturdy support (usually a sheet of Dibond, an aluminum composite material).

Photographer Viktor Bentley did this for his *Nomads* exhibit. He had his images printed with an inkjet, leaving a clean white border around each. He then had the prints mounted with a UV-filtering gel between Plexiglas and Dibond using the patented Diasec process.

He prefers Plexi to regular glass because "of the specific light penetration and refraction properties of the material," he says. "If you see the same print behind glass, the colors are less saturated and brilliant, and the image appears to be not as sharp compared to acrylic."

Although you can also use acrylic glass instead of Dibond as a backing, Bentley warns that

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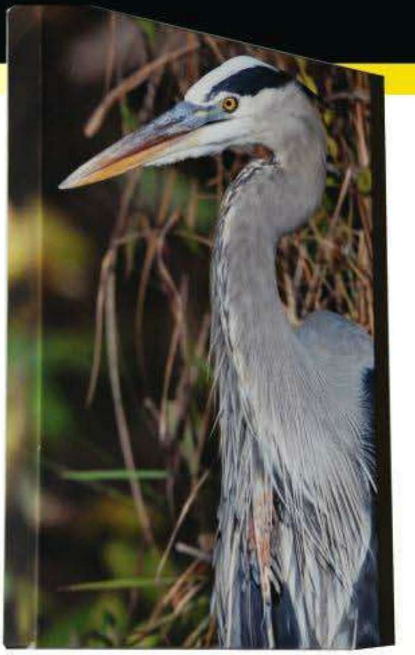

PRINTS ON CANVAS **You can order canvas wraps for your images online or, as shown here, you can print and construct them at home with a kit from companies such as Hahnemuhle.**

BRADLEY SHEARD (BIRD); THEANO NIKITAS (FINISHED ARTWORK)

because it is translucent, "blacks lose their power when light falls behind the work."

Of course, Plexi—like real glass—can still throw reflections. Berberian worked with Ira Block on the photographer's recent 9/11 show. The images were face-mounted, but Berberian suggested a nonreflective Plexi, because "a lot of Block's backgrounds are black," he says. "If we had used regular Plexiglas, it would have turned into a mirror."

Luden prefers to face-mount behind Tru Vue Conservation Clear, which protects against UV rays and is a step up from conventional grade, but not as expensive as other types of acrylic glass, which can cost up to $1,000 for a 4x8-foot sheet.

Going Green

Eco-minded? Seattle-based BumbleJax, which provides a variety of printing and finishing services online, now offers a bamboo alternative for mounting images. The company uses a 0.75-inch bamboo panel that is sanded—sides and back—and finished with a clear polyurethane. Wooden slats are attached to the rear surface, so the print gives the illusion of floating off the wall—a technique you can apply to many other display styles.

Digital Silver Imaging's Luden recently started working with a custom frame shop that uses sustainable wood. "Wood is classic, it's clean, and when clients know that our supplier is using sustainable wood, maybe they feel better about it," he says.

Canvas Wraps

Gallery wraps, which stretch canvas prints to cover a frame, have been around for a while. You can find do-it-yourself kits and a number of online companies specializing in canvas wraps. There is even a gallery wrap feature incorporated into onOne Software's Perfect Resize, assisting with cropping, sizing, and adding the "wings" needed for printing such canvases.

While you may not find gallery wrap photos in New York's Chelsea galleries, they remain popular among photographers in other parts of the country. With any canvas print, it is more critical to choose an appropriate photograph, since the substrate is textured and softens fine details.

Naked Prints

A photo exhibit can be as casual as attaching unmounted, unframed prints to the wall with pushpins or hanging them from a clothesline. It's not uncommon to see work from highly respected photographers to budget-minded students displayed in such an informal—but highly effective—manner.

Here is New York—A Democracy of Photographs, an installation of photos created in response to 9/11, exhibited with prints strung across the room. And pro photographer Chase Jarvis' *Dasein—An Invitation*

CONTINUES ON PAGE 124

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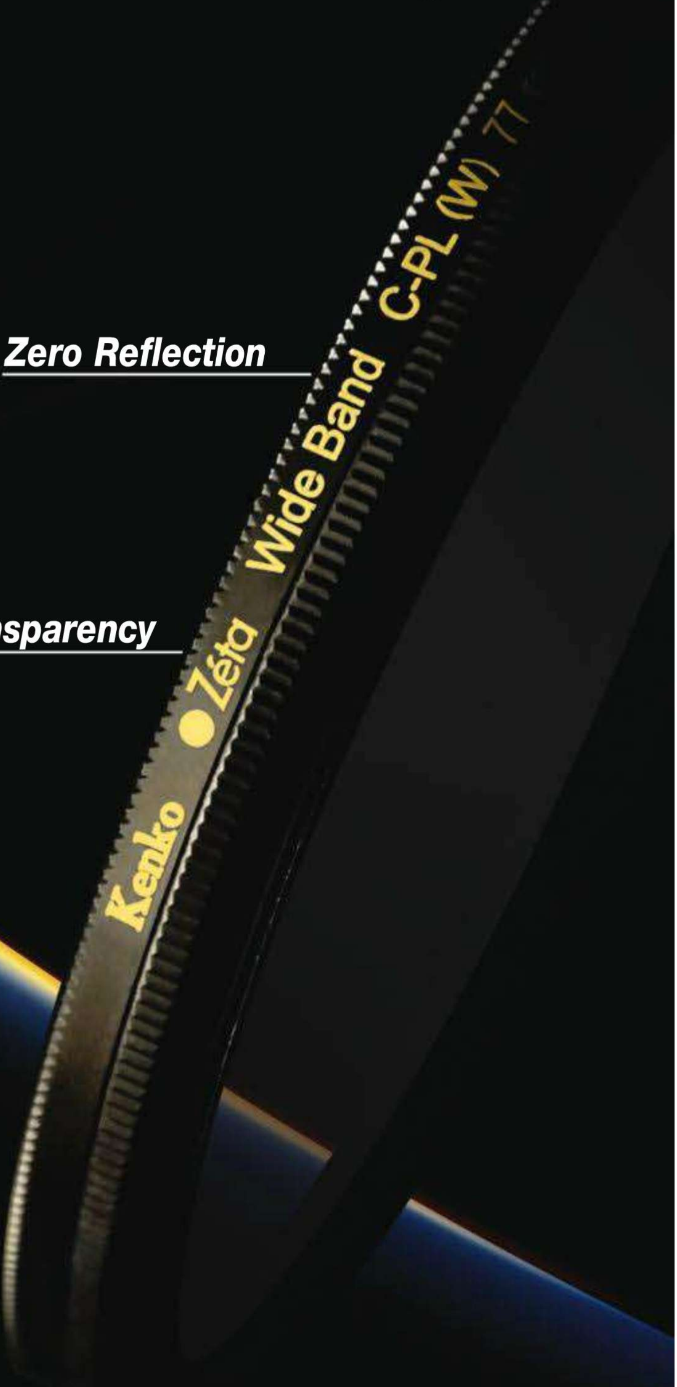

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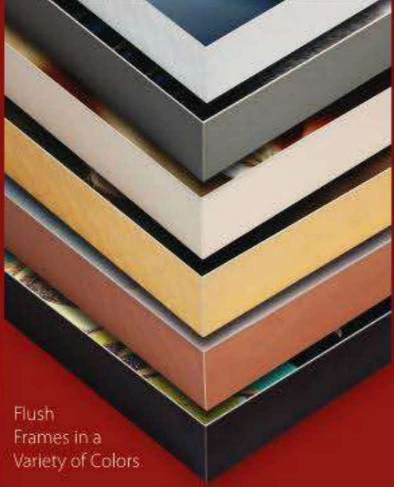

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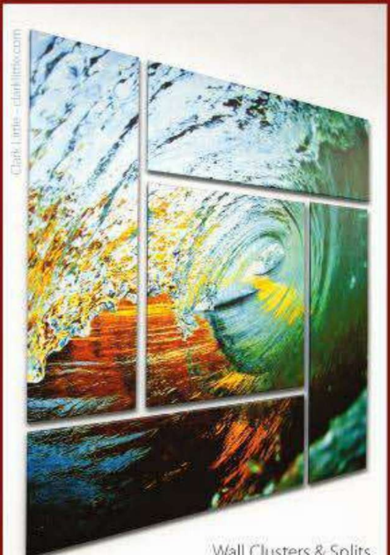
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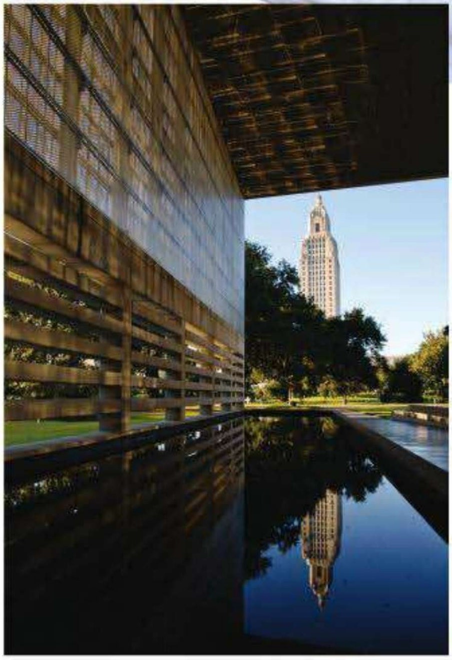
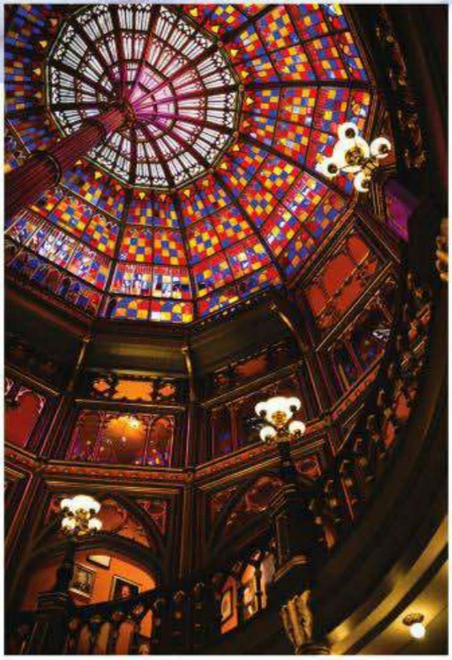
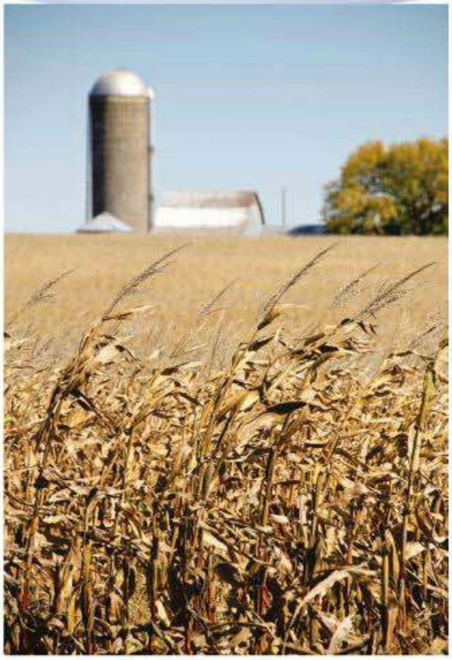






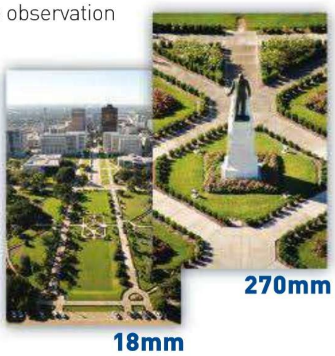
© MICHAEL C. SNELL

> **"This is a lens you can use all day in practically any situation and that's why it's the perfect choice for travelers."**

Michael C. Snell is a successful travel photographer who pursues a lifelong passion for picture taking by collecting his visual experiences and sharing them with legions of viewers worldwide. An avid traveler, he's shot in North and South America, Europe, Asia, Africa and the South Pacific, and his images have appeared in countless travel guides, magazines, and brochures. Based in Lawrence, Kansas, he's also acclaimed for his extensive coverage of his home state, the Great Plains and the Midwest. Let's join him on his most recent assignment using the remarkably compact, versatile Tamron 18-270mm f/3.5-6.3 Di II VC PZD all-in-one 15X zoom lens.

"This assignment took me on a circuitous loop around the nation's midsection," says Snell. "I knew I'd be shooting an enormous variety of subjects—architecture, historic sites, interiors, people and close-ups of food—in all kinds of light and weather, and I needed a lens that would let me travel light and minimize lens changes in dusty environments. The Tamron 18-270mm PZD zoom seemed like a great tool due to its amazing 15X zoom range (from 27-419mm equivalent on my Nikon D7000), its light weight, slim, ultra-compact dimensions, and its built-in VC image stabilization, which should allow me to shoot sharp images handheld even at long telephoto settings.

"After completing a whirlwind circuit from the tiny river towns in southeast, Iowa, to Baton Rouge, Louisiana; Krebs, Oklahoma; El Dorado, Kansas; and back home, I've concluded that the Tamron 18-270mm VC PZD delivers superb, flare-free image quality even under adverse conditions. This is a lens you can use all day in practically any situation and that's why it's the perfect choice for travelers, birders, hikers, kayakers, etc. No matter what you encounter you have what you need for covering almost anything wide or distant without compromising your creative options.



"I used the Tamron 18-270mm to capture the Baton Rouge skyline from the observation deck of the state capitol," Snell recalls, "and then zoomed in tight on a statue and captured it in exquisite detail. This lens is beautifully balanced, zooms smoothly, holds its settings, auto-focuses quickly and quietly, and above all, delivers the crisp detail and rich color that professionals demand. With the outstanding high-ISO performance of today's DSLRs, its moderate aperture isn't a problem, especially with the VC, which effectively eliminates shake-induced blur while maintaining a steady viewfinder image. When I got home and examined the images I shot, I was astonished at the quality. It's a great lens for anyone, enthusiast or pro, that wants the ultimate in shooting versatility and imaging performance."

For more information, visit www.tamron-usa.com

TAMRON

LAB

AUTHORITATIVE TESTS, REVIEWS, AND BUYING ADVICE

NIKON J1 AND SIGMA 18–50MM F/2.8–4.5 DC OS HSM
88
ZEISS DISTAGON 35MM F/1.4 ZE
94
100

SONY
NEX-7
24.3 MEGA PIXELS
E 3.5-5.6/18-55
Ø49
0.25m/0.82ft

SATOSHI

ILC TEST

LITTLE CHAMPION

Sony shakes up the camera game. Hard. Again.

SONY HAS a tendency to develop certain technologies, then apply them wherever it can—often to good effect. Last month, we saw the latest iteration of its transmissive mirror technology paired with a new 24.3MP CMOS sensor and a lovely OLED electronic viewfinder in the Alpha 77. Now Sony's taken those two new features and paired them with a completely revamped NEX body for the most impressive ILC we've seen to date, the NEX-7 ($1,200, street, body only; $1,350 with 18–55mm f/3.5–5.6 lens).

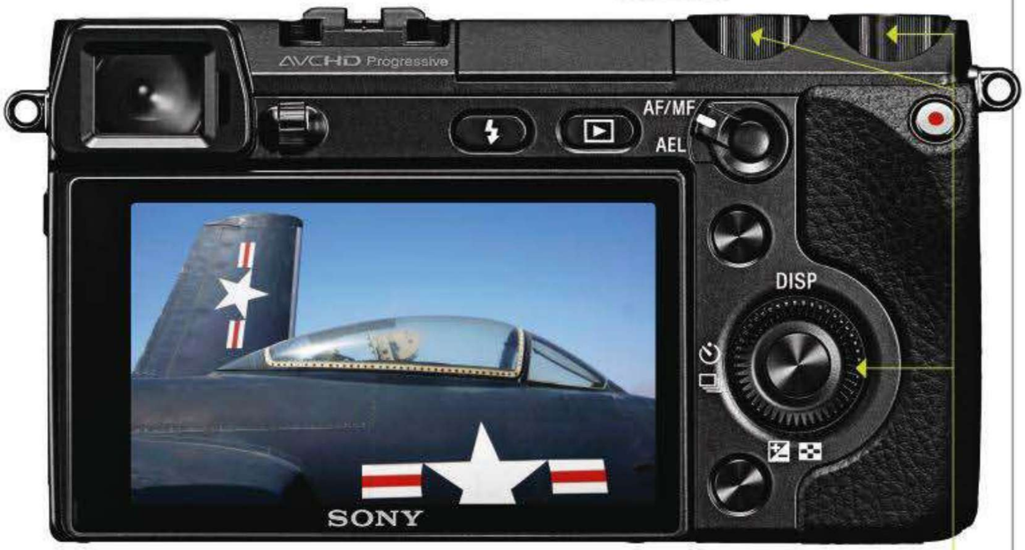
Fitting all those pixels into a

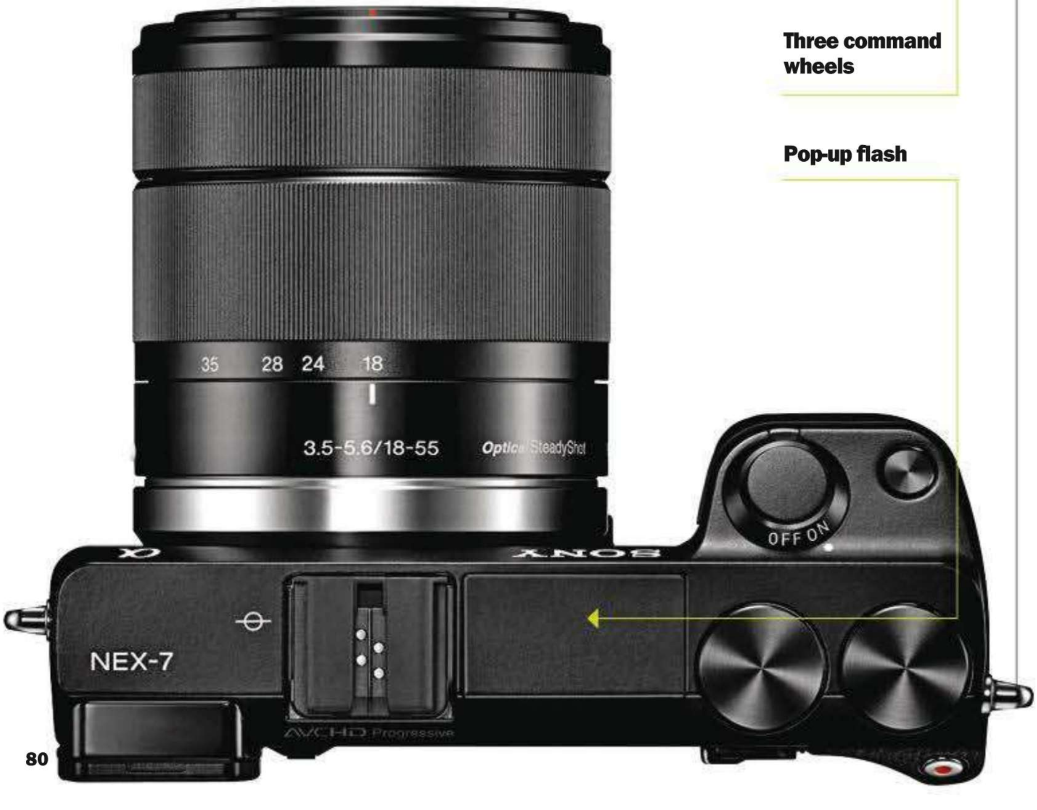
SONY NEX-7

- 24.3MP CMOS APS-C sensor
- 1080p60 HD video capture
- 3-in. 921,600-dot tilting LCD screen
- 2.4 million-dot OLED EVF
- New Tri-Navi three-wheel interface

AMATEUR PRO

SONY
α
E 3.5-5.6/18-55 OSS
0.25m/0.82ft
Ø49
24.3 MEGAPIXELS





Three command wheels

Pop-up flash

DSLR body is difficult enough, but packing them and an OLED EVF, and a tilting 3-inch, 921,600-dot LCD into a body this size is certainly no small feat.

In the Test Lab

With an Excellent resolution score, and the ability to hold plenty of res as ISOs increase, the NEX-7 earned an overall image quality rating of Excellent from ISO 100 through ISO 1600. That's quite impressive, given that it boasts the highest pixel count you can find in an APS-C format camera to date.

At its lowest sensitivity setting of ISO 100, it yielded 2740 lines per picture height to strip Panasonic's Lumix GH2 of its title as the ILC with the most resolving power. Plus, using its default noise-reduction settings when converting from RAW, the NEX-7 holds resolution to 2530 lines at ISO 1600. By ISO 6400 it dips down to 2420 lines. At its top sensitivity of ISO 16,000, resolution drops significantly to 2140.

The NEX-7 does a fine job keeping noise in check. At ISO 100, images could be a bit cleaner, with only a Very Low rating, a notch off our best rating. Still, it rated Low or better all the way up to ISO 1600. Even at ISO 16,000, noise was only slightly into the Unacceptable range.

Of course, this is all a factor of how Sony tunes the defaults in its Image Data Converter RAW software that ships with the camera. If you don't mind some additional noise and want to try to get more resolution out of the NEX-7 at high ISOs, you can turn down the noise reduction. We just wish that Sony

SONY NEX-7

WHAT'S HOT

Excellent IQ through ISO 1600.

WHAT'S NOT

Quality doesn't come cheap.

WHO IT'S FOR

Serious shooters who want the best ILC that money can buy right now.

PHILIP RYAN (LCD IMAGE)

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would show numerical settings for noise reduction.

Color accuracy? Also Excellent, with a 7.7 average Delta E.

In the Field

Image quality is only half of the picture. The metal-shelled body feels impressively rugged and has one of the most comfortable grips you'll find in any ILC right now. Better yet, Sony has added a third command wheel to create what it calls the Tri-Navi control system.

This makes a huge difference. For example, in aperture-priority mode, you can set aperture with one wheel, exposure compensation with the second, and ISO with the third. This sped our shooting a lot, especially when moving between outdoors and indoors, or in and out of shaded areas. Plus, if you're using the EVF, you don't have to take your eye away; you see instantly that the setting has changed.

If you like to use studio strobes, check out the FA-ST1AM hot-shoe adapter ($135, street) to add a sync terminal to the NEX-7.

When you tinker with other settings, the three wheels take on dif-

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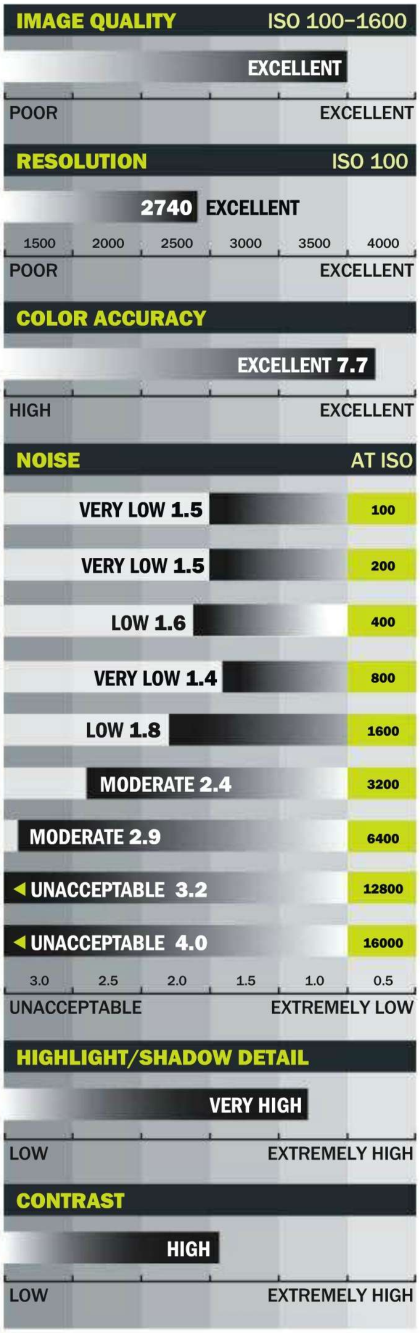
TEST RESULTS



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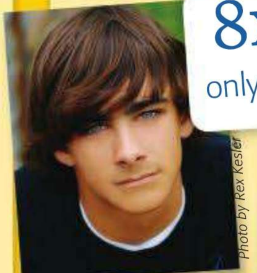

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ferent roles. Want to change AF from fixed center point to selectable spot? Just flick the first wheel. Place that spot horizontally with the second wheel and vertically with the third.

When using certain shooting modes, such as Sweep Panorama (see Showcase, page 8), the wheels become a bit redundant. Still, they provide a quick way to change the direction of the panorama if you want to switch from horizontal to vertical orientation.

The NEX-7 also offers modes that merge multiple images to good effect. The HDR setting, located somewhat strangely in the DRO section of the menus, merges three images and automatically aligns and tone-maps them for a high-dynamic-range image. You can select the width of the bracket in EV stops or let the camera choose, which it did admirably in many situations during our field testing. In low light, you might try Handheld Twilight mode, which merges six frames to significantly reduce noise in most cases.

Can't frame straight? The NEX-7 lets you overlay an electronic level on the LCD or EVF screen while framing a scene.

SPECIFICATIONS

IMAGING: 24.3MP effective, APS-C sized, Exmor CMOS sensor captures images at 6000x4000 pixels with 12 bits/color in RAW mode.

STORAGE: SD, SDHC, SDXC, or Memory Stick PRO Duo/PRO-HG Duo. Stores JPEG, ARW RAW, RAW + JPEG, and MPO (in 3D Sweep Panorama mode) files.

VIDEO: Up to 1920x1080p60 fps in AVCHD format; built-in stereo mic, minijack stereo mic input; contrast detection AF with continuous AF.

BURST RATE: Full-sized JPEGs (Fine mode): 3 fps up to 17 shots. RAW (12-bit): 3 fps up to 13 shots.

AF SYSTEM: TTL contrast detection with 25 focus points. Single-shot and continuous AF with tracking and face detection.

SHUTTER SPEEDS: 1/4000 to 30 sec, plus B (1/3-EV increments). Shutter life not rated.

METERING: TTL metering using 1200-zone multi-segment (evaluative), centerweighted, and spotmetering; 0–20 EV (at ISO 100, f/2.8).

ISO RANGE: ISO 100–16,000 (in 1-EV increments).

FLASH: Built-in pop-up with TTL autoflash, GN 20 (ISO 100, feet). Flash sync to 1/160 sec.

LCD: Tilting, 3-in. TFT with 921,600-dot resolution.

OUTPUT: Hi-Speed USB 2.0 and mini HDMI video.

BATTERY: Rechargeable NP-FW50 Li-ion, CIPA rating, 430 shots.

SIZE/WEIGHT: 4.8x2.8x1.7 in., 0.83 lb with a card and battery.

STREET PRICE: $1200 body only; $1350 with 18–55mm f/3.5–5.6 OSS zoom lens.

INFO: www.sonystyle.com

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Novoflex: MFT Adapters - enable MicroFourThird camera bodies to accept lenses from most camera manufacturers. Made in Germany.

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While none of these special modes yield perfect results all the time, with a little patience and experimentation, you'll find they come in very handy and may let you capture an acceptable image in difficult conditions.

Then there's the EVF, essentially the same one as in the A77 and A65. You won't see an integrated through-the-lens finder in any other rangefinder-style ILC. Bright, large, very high-res, and chock-full of info, it's a pleasure to frame images and control the camera with. Sony tucked it in the upper left corner of the camera without adding much to the body size.

As much credit is due for shoehorning in a tilting 3-inch 921,600-dot LCD without adding much depth to the camera, retaining a very sleek look. Also built in is a none-too-powerful pop-up flash and a Minolta-style hot-shoe.

Don't expect the burst power of the A77, but the NEX-7 holds its own. Standard burst shooting will get you up to 17 JPEGs or 13 RAW images at up to 3 fps. If you set the camera to Speed Priority, then you can get up to 10 fps.

Video shooters should like the footage from the NEX-7. Its tracking focus does a solid job of keeping moving subjects in focus, as with burst shooting. Clips have accurate-looking color rendition with pleasing saturation, and little in the way of video artifacts. Plus, you get recording options up to the current 1920x1080p/60fps limit of the AVCHD format.

Unlike Sony's DSLRs, the NEX-7 and other NEX cameras use lens-based image stabilization instead of the sensor-shift kind, so keep that in mind when buying new lenses.

Bottom Line

Sony's NEX-7 is currently our pick for the best ILC on the market. It combines outstanding image quality with solid ergonomics and, in addition to the normal array of preset shooting modes, plenty of useful options.

Sony still has a way to go to fill out its E-mount lens line as much as Panasonic and Olympus have with Micro Four Thirds. But we were very taken with the 24mm f/1.8 T* Carl Zeiss Sonnar lens we tried during field testing. This, along with the 50mm f/1.8 and 30mm f/3.5 lenses Sony added this year, provide nice low-light and specialty optics. Plus, if you can spare an extra $400, you can add the LA-EA2 A-mount adapter to use Sony or Minolta A-mount lenses on the NEX-7—while adding phase detection AF to boot.

When we tested Sony's first NEX cameras, we weren't very impressed. Now, we definitely are, and we're eagerly awaiting whatever Sony has up its sleeve next. *—Philip Ryan*

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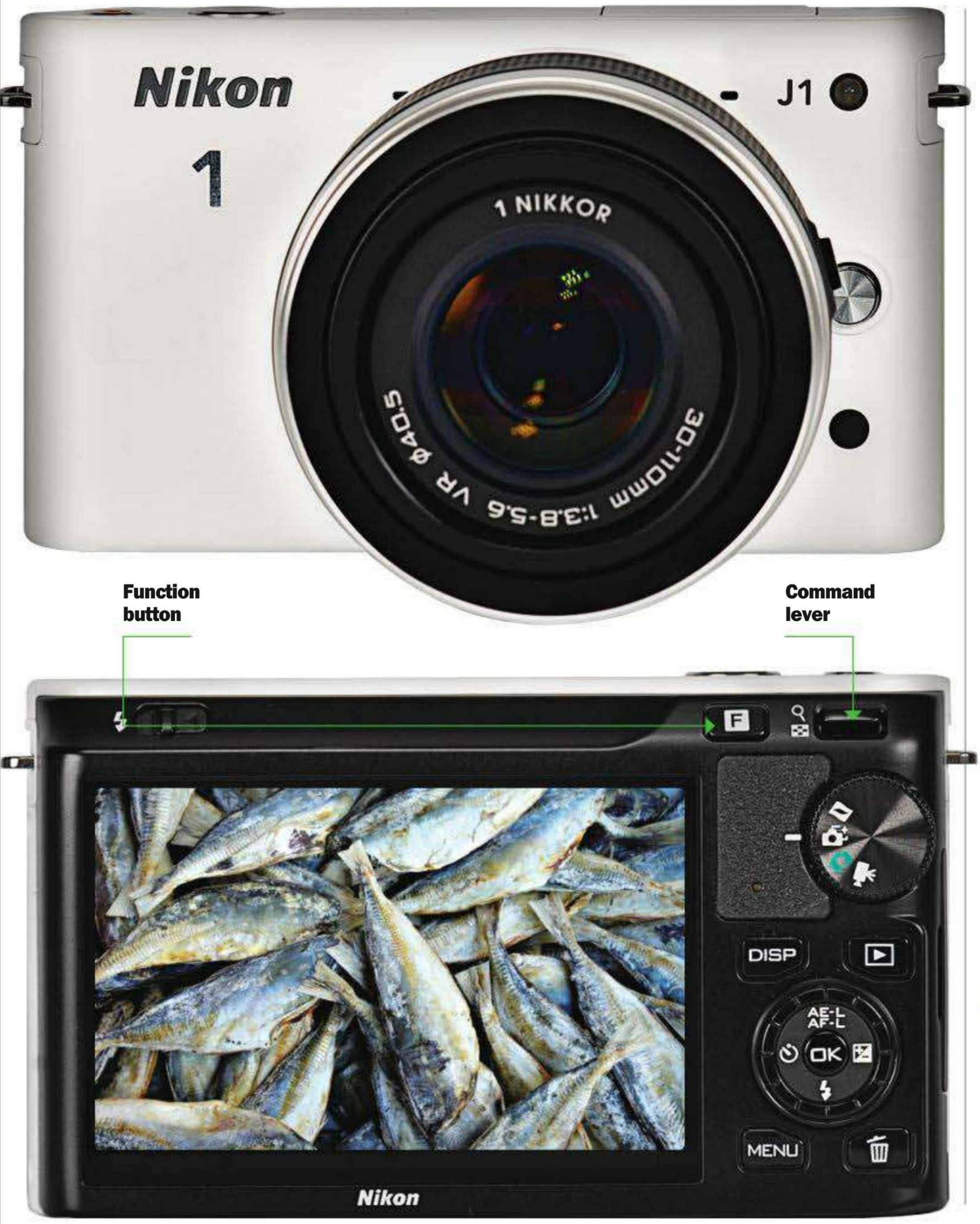
Curious Compact

NIKON BETS SMALLER IS BETTER IN ILC SENSORS

WITH ILCS from Panasonic, Olympus, Samsung, and Sony getting lots of attention, it was only a matter of time before one of the Big Two, Canon and Nikon, got in the interchangeable-lens compact game. Nikon has jumped in first with its Nikon 1 system.

So far comprised of two bodies and four lenses, the system uses sensors that are smaller in size than those found in Micro Four Thirds cameras. Nikon has dubbed this new sensor size the CX format, and the Nikon J1 ($650, street, with 10–30mm f/3.5–5.6 VR lens) is the first of this format to be tested in the Popular Photography Test Lab. What we found came as a bit of a surprise.



In the Test Lab

At 13.2x8.8mm, CX format sensors have a 2.7X lens factor (making that kit lens a 27–81mm full-frame equivalent). CX sensors have a little more than half the surface area of Four Thirds sensors, about a third that of APS-C sized sensors, and less than one-seventh that of a full-frame sensor. That leaves significantly less room for pixels in the J1 compared with the Sony NEX-7 (tested on page 79).

Nikon opted to keep the pixel count low—10.1MP—a strategy that led to pretty good performance in our noise tests; noise remained at a Low or better rating from ISO 100 to ISO 800.

The J1 scored an overall image quality rating of Very High in our tests at ISO 100 and ISO 200. The camera's resolution proved to be the limiting factor keeping it from a higher rating. At its bottom two sensitivity settings, the J1 turned in 2025 lines per picture height in

NIKON J1

WHAT'S HOT

Sleek look; Low noise for a small sensor.

WHAT'S NOT

Low pixel count limits resolving power.

WHO IT'S FOR

Casual shooters who appreciate style and ease of use and want swappable lenses.

DAN BRACAGLIA (CAMERA AND LCD IMAGE)

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RAW images converted to 16-bit TIFFs. At both ISO 400 and 800, a drop in resolution below 2000 lines knocked the J1's image quality down to a High rating. At higher ISOs, noise brought the overall image quality rating down further.

In our color accuracy test, the J1 achieved an Excellent rating with an average Delta E of 7.0.

The small CX sensor clearly limits image quality—if the pixel count were higher, it would likely have adverse affects on the noise.

In the Field

Possibly the biggest thing that the J1 has going for it is good looks. The white sample we got for testing is gorgeous, with a smooth finish that has a luxurious texture, and at the same time feels relatively secure in the hand. There's no real grip to speak of, but given that it's intended for people stepping up from compacts, they might not miss it.

Like Olympus's Pen kit lenses, the 10–30mm kit lens for the J1 (and its sibling, the V1) can be retracted into the short lens barrel when not in use. Out of the box, the act of opening the lens will turn the camera on.

There aren't all that many buttons on the J1, though the function button can be programmed to control a handful of different settings. The lever next to the function button is used to change the majority of settings, such as aperture or shutter speed in priority shooting modes. It felt mushy, and wasn't always reliable—occasionally, when we were trying to change aperture, it took two or three presses to make it happen.

Overall, the J1 has an amateurish feel to it, with program, manual, and aperture- and shutter-priority buried in menus rather than getting their own spots on the mode dial. Instead, you'll find gimmicky things such as Nikon's Smart

50 40 30 L
Nikon 1 NIKKOR 30-110
ON/OFF
F

DAN BRACAGLIA

TEST RESULTS

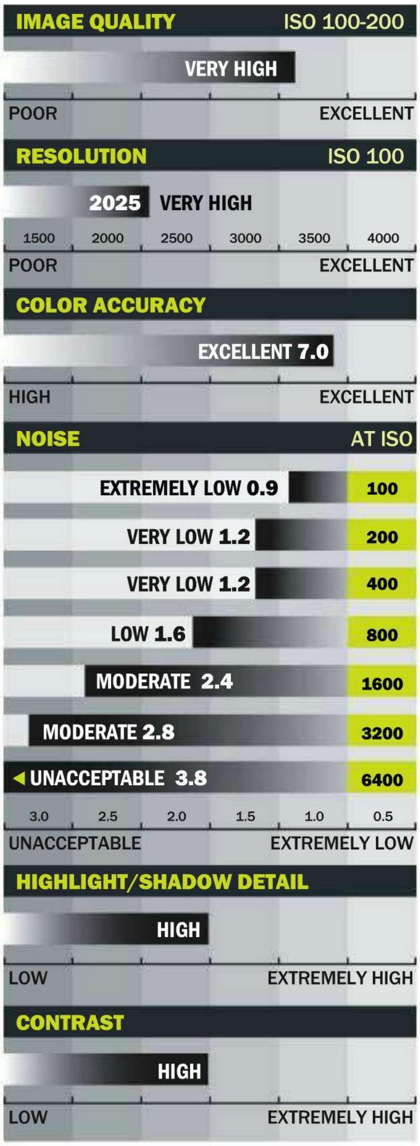
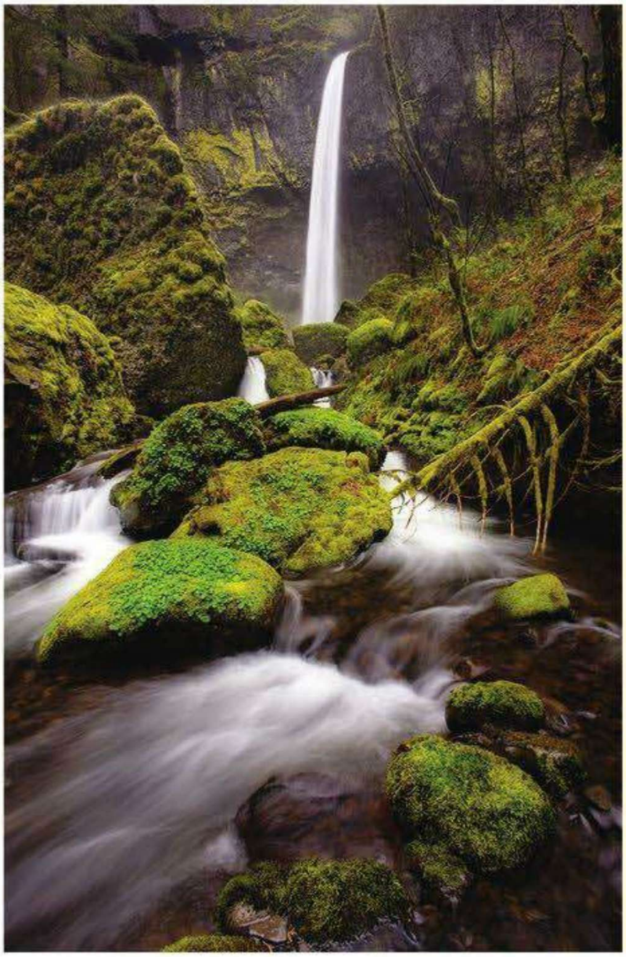


Photo Selector and Motion Snapshot. The former captures up to 20 images in a burst and selects five of the best to keep based on sharpness, composition, and whether your subjects are smiling or blinking. Motion Snapshot captures a 2-second slow-motion video clip with a still image at the end. Cute, but not all that useful.

One of the more innovative things Nikon did with the J1 and V1 is to embed phase-detection AF points in the CMOS imaging sensor. Based on lighting conditions, the camera chooses whether to use phase-



"I used my versatile new Vari-N-Trio from Singh-Ray to shoot this image of Elowah Falls in Oregon's Columbia River Gorge. This new filter not only gives me greater control of the exposure duration (for this shot it was 3.2 seconds at f/8 at ISO 100), but it also allows me to reduce the glare from the wet rocks and foliage and, at the same time, achieve more vibrant greens and earth tones—all at the moment the exposure is made. That means less of my time spent on post-processing. I love that! I also like the way the double-ring system lets me quickly adjust both density and the degree of polarization... and it's all there in a single filter."

– Stephen Oachs
StephenOachs.com

Image by Stephen Oachs... Vari-N-Trio™ by Singh-Ray

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or contrast-detection AF. In bright light, the J1 focuses as fast as we've seen any ILC lock onto a subject—although not significantly faster. In low light, it proved a bit faster than most other ILCs we have used. The only ILCs that beat it are Sony's NEX cameras, but only if they're using the cumbersome A-mount adapter that adds phase-detection AF.

Bottom Line

We haven't yet warmed up to Nikon's System 1. We think the target audience will more likely want robust image-sharing options than a collection of lenses. Will these buyers spring for a 10–100mm (27–270mm equivalent) f/4.5–5.6 that costs $750, street? We doubt they will.

While Nikon's higher-end V1 has a mechanical shutter, the J1 electronically samples its sensor like a compact.

Even more perplexing, its smaller sensor has yet to give System 1 any size advantage over other ILCs. If you're a casual shooter who doesn't print large and you like the J1's style, you might be happy with it. But if you're looking for an ILC that's more powerful than a compact, and you like seamless control over aperture and shutter speed, then this probably isn't the camera for you. —*Philip Ryan*

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SPECIFICATIONS

IMAGING: 10.1MP effective CX format CMOS sensor captures images at 3872x2592 pixels each, with 12 bits/ color in RAW capture.

STORAGE: SD, SDHC, or SDXC stores JPEG, NEF RAW, RAW + JPEG, or MOV files.

VIDEO: Up to 1920x1080i60 or 1280x720p60 H.264/MPEG-4; built-in stereo mic; contrast/phase AF with continuous AF in video mode.

BURST RATE: Full-sized JPEGs up to 28 frame at 5 fps; RAW up to 19 frames at 5 fps.

AF SYSTEM: TTL hybrid contrast/phase detection with 41-area Auto-area-AF, or single-point selectable AF from 135 areas.

SHUTTER SPEEDS: 1/16,000 to 30 sec, plus B (1/3-EV increments).

METERING: TTL metering with unspecified-area Matrix, centerweighted, and spot (2mm circle centered on focus area).

ISO RANGE: ISO 100–3200, expandable to ISO 6400 (in 1-EV increments).

FLASH: Built-in pop-up with TTL autoflash; GN 16 (feet, ISO 100), covers 27mm angle of view. Flash sync to 1/60 sec.

MONITOR: 3-inch TFT LCD with 460,000-dot resolution.

OUTPUT: Hi-Speed USB 2.0; mini-HDMI video.

BATTERY: Rechargeable EN-EL20 Li-ion, CIPA rating 230 shots.

SIZE/WEIGHT: 4.2x2.4x1.2 in., 0.7 lb with an SD card and battery.

STREET PRICE: $650 with 10–30mm f/3.5–5.6 lens or $900 with 10–30mm and 30–110mm f/3.8–5.6 lens.

INFO: www.nikonusa.com

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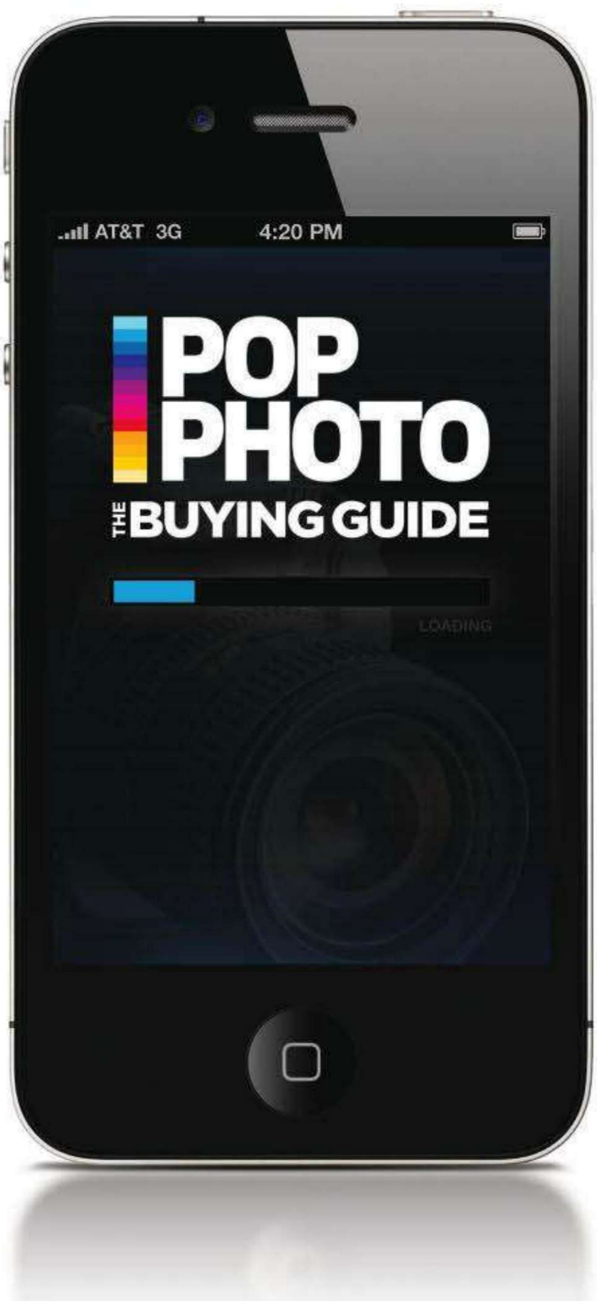
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Back
SUPER WIDE ANGLE
CANON EF 8–15MM F/4L FISHEYE USM
SIGMA 8-16MM F/4.5-5.6 DC HSM
RATING: 6
PENTAX 15MM F/4 DA ED AL LIMITED
RATING: 7
FUJIFILM FINEPIX
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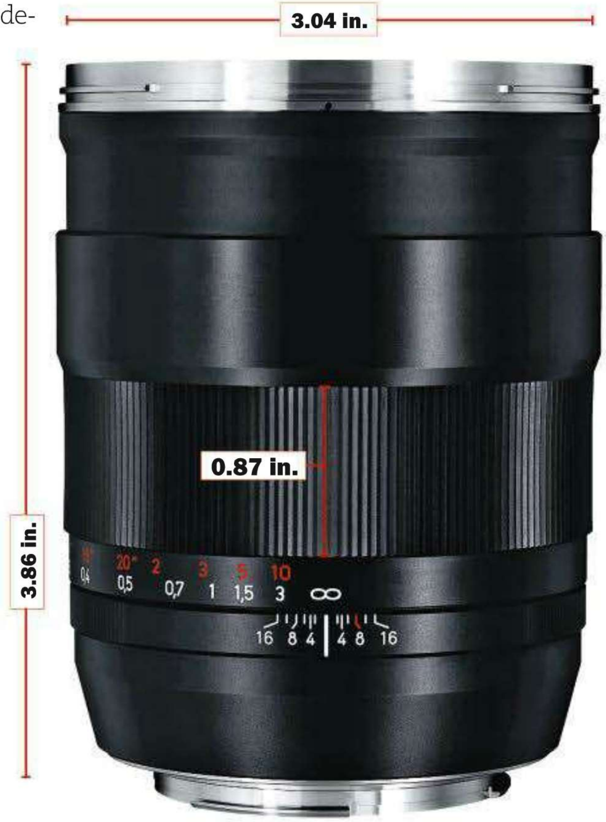

THE FASTEST Zeiss wide-angle for today's DSLRs, the full-frame 35mm f/1.4 Distagon T* ZE is in the Canon EF mount ($1,843, street) and is similar in most respects to the ZF.2-mount lens for Nikons; both have been on shelves for about 18 months and are garnering impressive word of mouth from professionals and serious hobbyists. Together with the equally impressive 50mm and 85mm f/1.4s, it makes up a troika of unusually fast, unusually sharp manual-focus tanks from Zeiss.

One of several traits that set this 35mm apart is its pairing of wide focal length and exceedingly large maximum aperture. Usually, the wider a lens, the deeper the apparent depth of field, making it difficult to separate a subject from its environment by defocusing foregrounds and/or backgrounds. As a result, we get used to seeing almost everything sharp (or nearly sharp) in wide-angle scenes. That is not

CONTINUES ON PAGE 122

ZEISS DISTAGON T* 35MM F/1.4 ZE

WHAT'S HOT
Capable of truly distinctive images.

WHAT'S NOT
No AF, heavy, expensive.

WHO IT'S FOR
Dedicated shooters who aren't afraid of manual focus.

SPECIFICATIONS

35MM (36.02mm tested), f/1.4 (f/1.46 tested), 11 elements in 9 groups. Focusing turns 150 degrees.
DIAGONAL VIEW ANGLE: 63 degrees.
WEIGHT: 1.95 lbs. **FILTER SIZE:** 72mm.
MOUNT: Canon, Nikon.
INCLUDED: Lenshood.
STREET PRICE: $1,843.

TEST RESULTS

DISTORTION: 0.22% (Slight) barrel.
LIGHT FALLOFF: Gone by f/2.5.
CLOSE-FOCUSING DISTANCE: 11.75 inches.
MAXIMUM MAGNIFICATION RATIO: 1:4.77.

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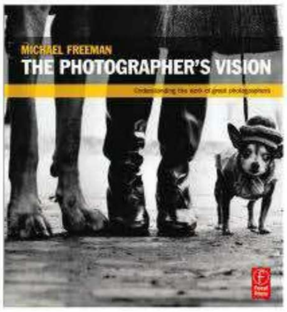

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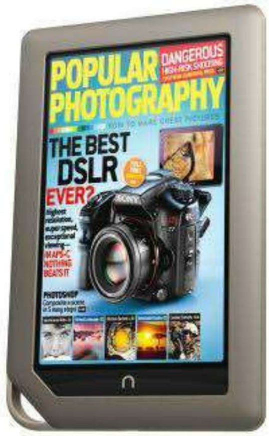

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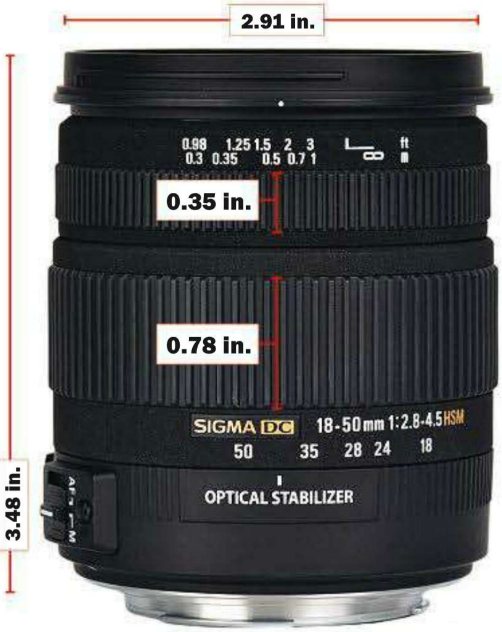
SIGMA'S 'SOMETHING EXTRA'

INTRODUCED IN 2008, this lens is a step up from a kit zoom but still has much in common with the kit glass from Canon and Nikon. Like the big guys, the Sigma offers image stabilization, a near-silent HSM focusing motor, and a street price of around $200.

Sigma's 18–50mm does them better, however, on several fronts: It's faster, with top-drawer glass (three aspheric and two low-dispersion elements), a stationary barrel, and metal lensmount. It scales up to a 29–80mm equivalent on our test Canon, to 27–75mm on other APS-C bodies.

Weighing just under a pound, it is light and compact enough to cast no shadow when used with the pop-up flash on our Canon EOS Rebel 3Ti. It's also attractive, with matte black finishing and gold accents, and sports well-damped zoom and focusing rings.

On our optical bench, it drew down Excellent-range SQF scores at the three tested focal lengths. Despite its high-quality glass elements, however, it produced slightly less impressive sharpness and contrast scores than the stablized 18–55mm kit lenses from Canon and Nikon, or the unstabilized Pentax (whose system puts IS in the camera instead).



CONTINUES ON PAGE 120

SIGMA 18–50MM F/2.8–4.5 DC OS HSM

WHAT'S HOT
A lot of speed for $200.

WHAT'S NOT
Optically average.

WHO IT'S FOR
Amateurs unsatisfied with their slower, unstabilized kit zooms.

DAN BRACAGLIA

SPECIFICATIONS

18–50MM (18.00–50.01mm tested), f/2.8–4.5 (f/2.75–4.69 tested), 16 elements in 12 groups. Focus ring turns 70 degrees. Zoom ring turns 70 degrees.
DIAGONAL VIEW ANGLE: 69–27 degrees.
WEIGHT: 0.98 lb. **FILTER SIZE:** 67mm.
MOUNTS: Canon AF, Nikon AF, Pentax AF, Sony/Minolta AF, Sigma AF.
INCLUDED: Lenshood.
STREET PRICE: $199.

TEST RESULTS

DISTORTION: At 18mm, 0.34% (Visible) barrel. At 28mm, 0.17% (Slight) pincushion. At 50mm, 0.14% (Slight) pincushion.
LIGHT FALLOFF: At 18mm, gone by f/4. At 28mm, gone by f/4. At 50mm, gone by f/5.
CLOSE-FOCUSING DISTANCE: 12.21 inches.
MAX. MAGNIFICATION RATIO: At 18mm, 1:10.52. At 28mm, 1:6.85. At 50mm, 1:4.23.
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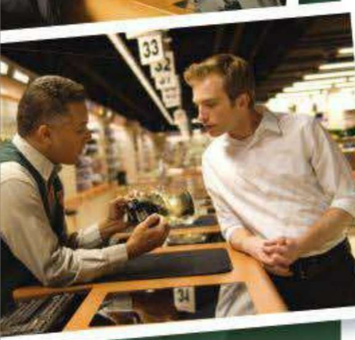

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- 3" High Res. LCD • 4.2x Optical Zoom
- 4.3-17.9mm f/1.8-4.9 (35mm equiv: 24-100mm) • SDHC/SDXC Card Slot
- 4-Way VR Image Stabilization • Full HD 1920 x 1080 Video with Stereo Sound
- Dimensions: 4.3 x 3.1 x 32.3 x 4.1 x 1.3"

*#NICPP300**

12 Mega Pixels

Panasonic Lumix DMC-LX5

- 3" LCD • HD Video Recording
- 3.8x Optical Zoom • 4x Digital Zoom
- 5.1-19.2mm f/2-3.3 (35mm equiv: 24-90mm) Leica DC Vario-Summicron
- SDHC/SDXC Card Slot • Raw Recording
- Dimensions: 4.32 x 2.58 x 1.69"

#PADMCLX5 Black, White*

10 Mega Pixels

SONY CyberShot DSC-WX10

- 2.8" LCD Monitor • 7x Optical Zoom
- 4.28-30mm f/2.4-5.9 (35mm equiv: 24-168mm) • SD/SDHC/SDXC Card Slot
- 1080i AVCHD HD Video with Dual Record
- Superior Auto w/HDR Mode • Manual Controls
- Dimensions: 3.74 x 2.11 x 0.92"

#SODSCWX10B

16 Mega Pixels

SONY CyberShot DSC-H70

- 3" LCD Monitor • 720p HD Video
- 10x Optical Zoom • iAuto and Easy Mode
- 4.25-42.5mm f/3.5-5.5 (35mm equiv: 25-250mm) Lens • Soft Skin Mode
- MS PRO Duo & SDHC/SDXC Card Slots
- Dimensions: 3.98 x 2.24 x 1.10"

#SODSCH70 Black, Blue, Red, Silver*

16 Mega Pixels

MEMORY CARDS

CF Compact Flash

	Delkin				Kingston				Lexar			Sandisk			
	Std	Pro	Combat 625x	Combat 685x	Std	Elite Pro 133x	Ultimate 266x	Ultimate 600x	Platinum II 200x	400x	600x	Ultra 30 MBs	Extreme 60 MBs	Extreme Pro 90 MBs	Extreme Pro 100 MBs
4GB	17.95	34.99	—	—	10.20	14.50	—	—	24.50	—	—	19.95	—	—	—
8GB	22.50	49.99	79.99	129.99	17.50	19.95	—	—	28.35	45.95	74.95	34.95	54.95	—	—
16GB	39.99	89.99	144.99	169.99	—	—	32.74	69.88	49.95	74.95	120.83	63.95	94.95	149.99	—
32GB	87.95	139.99	269.99	299.99	—	—	69.95	143.20	—	137.95	234.22	—	165.95	269.99	—
64GB	—	299.95	—	579.99	—	—	—	—	—	—	—	—	—	549.99	—
128GB	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,149.99

MSDUO Memory Stick Pro Duo

	Sony	
	Mark II	Pro-HG HX 20 MBs
2GB	14.99	—
4GB	16.95	—
8GB	—	29.95
16GB	—	54.99
32GB	—	101.98

SDXC Extended Capacity

	Delkin	Kingston		Lexar	Sandisk	Panasonic
	Elite 45 MBs	Class 6 15 MBs	Class 10 35 MBs	Class 10 20 MBs	Class 4 15 MBs	Class 10 45 MBs
64GB	349.99*	191.74	409.95*	119.95	116.95	399.95*
128GB	—	—	—	199.00	—	—

Note: Not all devices support SDXC cards *** UHS-1**

SDHC-UHS-1 Ultra High Speed

	Delkin	Kingston	Sandisk	Panasonic	
	Elite 80 MBs	Ultimate XX 35 MBs	Extreme Pro 45 MBs	Gold 25 MBs	Pro Class 10
8GB	69.99	59.95	32.95	44.50	52.95
16GB	129.99	115.74	64.95	89.50	107.95
32GB	249.99	249.74	129.95	163.50	194.95

SD HC Secure Digital High Capacity

	Delkin			Kingston				Lexar			Panasonic		Sandisk				Sony		
	Pro Class 6	Pro Class 10	Micro	Standard Class 4	Standard Class 6	Ultimate X Class 10	Micro Class 4 Multi Kit	Std Class 4	Platinum II 100x	Professional Class 10 133x	Silver Class 4 20 MBs	Gold Class 10 25 MBs	Std Class 4	Ultra Class 4 15 MBs	Extreme Class 10 30 MBs	Micro Class 4	Standard Class 4	Standard Class 10	Micro Class 4
4GB	9.09	19.99	12.50	—	8.95	—	9.95	7.99	10.49	—	9.95	24.50*	7.99	10.95	13.95	7.99	7.99	—	8.95
8GB	17.50	34.99	22.50	12.50	14.95	15.99	13.99	14.95	15.79	24.47	19.50	—	14.95	18.99	23.95	14.99	14.99	22.95	14.49
16GB	34.50	64.99	34.50	24.50	24.45	25.70	28.95	21.99	28.36	39.95	34.99	—	24.95	26.95	43.95	27.99	29.95	32.50	—
32GB	—	124.99	—	49.95	—	52.95	59.95	42.50	52.51	69.95	—	*** UHS-1**	46.95	61.99	82.00	69.95	—	64.95	—

Oben™

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CT-3500
Folded for Travel
AT-3410
Open Extended
CT-3410
Macro Position

Travel Tripods

Sturdy yet superbly lightweight tripods with legs that fold upward 180° to create an extremely compact package for transport – with the included head attached. For further versatility for travelers, one of the legs unscrews from the chassis and attaches to the head & carbon-fiber center column to form a working-height monopod. These full-sized tripods with head ensure a stable base for any DSLR body/lens combination with multiple accessories, or for a compact HD video camera.

- One Leg, Column & Head Form Monopod • Removable Head
- Forged Aluminum Chassis • Pan & Tilt Control • Retractable Spikes in Feet

Model	Included Head	Load Capacity	Max. Height	Folded	Weight	SKU #	Price
Anodized Aluminum Series with Head							
AT-3400	BA-00T	6.6 lb	56.7"	15"	3 lb	#OBAT3400BA00	**$149.95**
AT-3410	BA-00T	6.6 lb	59.4"	16.5"	3.4 lb	#OBAT3410BA00	**$224.95**
AT-3420	BA-0T	11 lb	62.6"	17.7"	4.2 lb	#OBAT3420BA0T	**$259.95**
6x Carbon Fiber Series with Head							
CT-3400	BB-0T	12.4 lb	56.7"	15"	3 lb	#OBCT3400BB0T	**$349.95**
CT-3410	BB-0T	16.8 lb	59.4"	16.5"	3 lb	#OBCT3410BB0T	**$399.95**
CT-3420	BB-1T	22 lb	62.8"	17.7"	4 lb	#OBCT3420BB1T	**$449.95**
CT-3500	BB-0T	12.4 lb	53.3"	12.8"	2.5 lb	#OBCT3500BB0T	**$349.95**
CT-3510	BB-0T	16.8 lb	60.6"	15.5"	3.2 lb	#OBCT3510BB0T	**$399.95**
CT-3520	BB-1T	22 lb	64.8"	16.5"	4 lb	#OBCT3520BB1T	**$469.95**

Panasonic Lumix DMC-G3 DSLR

- 1920 x 1080/60i HD Video Capture
- 3" Free Angle Touch Enabled LCD
- Electronic Eye-Level Viewfinder
- Micro Four Thirds Lens Mount
- Lens Options and 3D Capture
- SD/SDHC/SDXC Card Slot
- Dust reduction system: supersonic wave filter
- Intelligent Auto Plus
- Available in Black, Brown, Red or White

*Kit with 14-42mm G Vario Lens............ #PADMCG3K**

16 Mega Pixels

SONY Alpha NEX-5N DSLR

- BIONZ Image Processor
- Tiltable 3.0" Touch LCD
- Accepts Sony E-Mount Lenses
- Up to 10 FPS Shooting
- 1080/60p HD Movie Capture
- SD/SDHC Card Slot
- Photo Creativity Touch
- Sweep Panorama
- HDMI Output
- Available in Black or Silver

Black with 18-55mm Lens................#SONEX5NKB
Silver with 18-55mm Lens................#SONEX5NKS

16 Mega Pixels

OLYMPUS PEN E-P3 DSLR

- 3" Touch Screen OLED
- TruePic VI Image Processor
- 4/3 Full Frame Zuiko Lenses
- SDHC/SDXC/UHS-1 Card Slot
- 3 Mode Image Stabilization
- 12,800 ISO & Built-In Flash
- 1080/60i HD Movie Capture
- All Metal Body with Full-Advanced Control
- Available in Black, Silver or White

*Kit with 17mm Zuiko Lens ....#OLEP317**
*Kit with 14-42mm Zuiko Lens................#OLEP31442**

12 Mega Pixels

SONY Alpha SLT-A55 DSLR

- Translucent Mirror for Fast Focus
- 921K Dot 3" Tiltable LCD screen
- Uses Sony Alpha (compatible with Minolta Lenses (1.5x factor)
- Built-In GPS
- Full HD 1080/60i Video
- 3D Sweep Panorama Mode
- Quick AF for Full HD Movie Capture
- 10 FPS Continuous Shooting
- Up to ISO 12800 Sensitivity

*Body Only..#SOSLTA55**

16 Mega Pixels

PENTAX K-r DSLR

- 720p HD Video
- 11 Point SAFOX IX Autofocus System
- In-Camera HDR Image Capture
- IrSimple Infrared Data Transfer
- 3" LCD monitor with Live View
- Uses Pentax AF Lenses (1.5x factor)
- SD/SDHC Card Slot
- 6 FPS Frame Rate
- ISO 100-25,600

*Body Only..#PEKR**

12 Mega Pixels

SONY Alpha SLT-A77 DSLR

- Upgraded BIONZ Image Processor
- 2nd Gen Translucent Mirror Design
- OLED Electronic Viewfinder
- Swivel/Tilt 3.0" LCD Screen
- Uses Sony Alpha Lenses (1.5x factor)
- Built-In GPS
- Dual Media Slots
- 1080p HD Movie Capture
- SteadyShot INSIDE Stabilization

*Body Only..#SOSLTA77V**

24 Mega Pixels

OLYMPUS

Flash System

FL-300R Flash	**$169.95**	FL-36R Flash	**$229.95**
FL-50R Flash	**$499.95**	RF-11 Ring Flash	**$249.95**
SRF-11 Ring Flash Set	**$559.95**		
TF-22 Twin Flash	**$449.95**		
STF-22 Twin Flash Set	**$739.95**		

Zuiko 4/3 System Digital Lenses

8/3.5 Fish-eye ED	**$799.99**
35/3.5 Macro ED (52ø)	**$229.95**
50/2.0 Macro ED (77ø)	**$499.95**
150/2.0 ED (82ø)	**$2,499.95**
300/2.8 ED	**$6,999.95**
7-14/4.0 ED (72ø)	**$1,799.95**
11-22/2.8-3.5 ED (72ø)	**$799.95**
12-60/2.8-4 ED SWD (72ø)	**$999.95**
14-42/3.5-5.6 ED (58ø)	**$249.95**
18-180/3.5-6.3 ED (62ø)	**$499.95**
35-100/2.0 ED (77ø)	**$2,499.99**
40-150/4-5.6 ED (58ø)	**$279.95**
50-200/2.8-3.2 ED SWD (67ø)	**$1,199.95**
90-250/2.8 ED (105ø)	**$5,999.95**
EC-14 1.4x Teleconverter	**$439.95**
EC-20 2x Teleconverter	**$479.95**
MF-1 OM Lens Adapter	**$83.95**

PENTAX

AF Flash System

AF-360FGZ	AF-540FGZ ....

SMCP-DA Digital AF Lenses

14/2.8 ED IF (77ø)	15/4.0 ED AL (49ø) ....
35/2.8 Mac. Limited (49ø)......	55/1.4 Limited (58ø) ....
21/3.2 AL Limited "Pancake" (49ø)	
40/2.8 Limited "Pancake" (49ø)..	
70/2.4 Limited "Pancake" (49ø)..	
200/2.8 ED IF....................	300/4.0 ED IF SDM (77ø) ....
10-17/3.5-4.5 ED IF (77ø).....	12-24/4 ED AL IF (77ø).......
16-45/4 ED AL (67ø)..	
16-50/2.8 ED AL IF SDM (77ø)	
17-70/4.0 AL IF SDM (67ø)	
18-55/3.5-5.6 AL II (52ø)...	
50-135/2.8 ED IF SDM (67ø)..	
50-200/4-5.6 ED WR (52ø)	
55-300/4-5.8 ED (58ø)..	
60-250/4.0 ED IF SDM (67ø)..	

AF Lenses for 35mm & Digital SLRs

31/1.8 Limited (58ø)..........	50/1.4 (49ø) ....
43/1.9 Limited "Pancake" (49ø)..	
50/2.8 Macro (52ø) with Case	
77/1.8 Limited (49ø)..	
100/2.8 D FA AW Macro (49ø)..	

SONY

Compatible with Maxxum DSLRs

Flash System

HVL-F20AM	**$129.99**	HVL-F20S	**$149.99**
HVL-F43AM	**$349.99**	HVL-F58AM	**$499.99**

Digital Lenses

16/2.8 Fish-eye	**$899.99**	20/2.8 (72ø)	**$649.99**
24/2 Carl Zeiss (72ø)	**$1,299.99**		
35/1.4 G (55ø)	**$1,399.99**	50/1.4 (55ø)	**$399.99**
50/2.8 Macro (55ø)	**$529.99**		
85/1.4 Carl Zeiss (72ø)	**$1,499.99**		
100/2.8 Macro (55ø)	**$749.99**		
135/1.8 Carl Zeiss (77ø)	**$1,599.99**		
135/2.8 STF (72ø)	**$1,299.99**		
300/2.8 G APO	**$6,299.99**		
11-18/4.5-5.6 DT (77ø)	**$699.99**		
16-35/2.8 ZA SSM Carl Zeiss (77ø)	**$1,899.99**		
16-80/3.5-4.5 DT Carl Zeiss (62ø)	**$849.99**		
16-105/3.5-5.6 DT (62ø)	**$649.99**		
18-200/3.5-6.3 DT Aspherical (62ø)	**$549.99**		
18-250/3.5-6.3 DT (62ø)	**$599.99**		
24-70/2.8 Carl Zeiss (77ø)	**$1,799.99**		
70-200/2.8 G APO (77ø)	**$1,999.99**		
70-300/4.5-5.6 G (62ø)	**$899.99**		
75-300/4.5-5.6 (55ø)	**$249.99**		
1.4x Teleconverter	**$499.99**	2x Teleconverter	**$499.99**

expoimaging

Digital White Balance Filters

ExpoDisc is an easy to use custom white balance solution that eliminates the inconvenience and inconsistencies of other methods.

- Use in Ambient, Studio or Mixed Light
- Easy to Use, Durable, Compact

52mm - Neutral or Portrait	#EXWB52*	**$69.95**
58mm - Neutral or Portrait	#EXWB58*	**$79.95**
62mm - Neutral or Portrait	#EXWB62*	**$84.95**
67mm - Neutral or Portrait	#EXWB67*	**$89.95**
72mm - Neutral or Portrait	#EXWB72*	**$94.95**
77mm - Neutral or Portrait	#EXWB77*	**$99.95**
82mm - Neutral or Portrait	# EXWB82*	**$104.95**

OLYMPUS
50mm f/2 Macro ED Zuiko
Digital Lens

- *Designed exclusively for Digital SLRs*
- Ideal for macro photography and also as a portrait lens
- Magnification 1:2
- ED glass element
- Min. focus: 9.45"
- 52mm filter diameter
- Weight: 10.6 oz

PENTAX
18-135mm f/3.5-5.6 ED AL (IF)
DC WR Digital Lens

- *Designed exclusively for Digital SLRs*
- SP Coating Repels Dust, Water, & Grease
- Weather resistant
- Quick-Shift Focus System
- Min. focus: 1.3'
- 62mm filter diameter
- Weight: 14.3 oz

SONY
HVL-F58AM
Shoe-Mount Digital Flash

- Zoom Head (24-105mm)
- Bounce & Swivel Head
- Guide No. 190'
- TTL Dedication
- Vari-Power
- High-Speed Sync
- Auto WB Adjustment
- Wireless Ratio Control
- Weight: 15.6 oz

SONY
16-80mm f/3.5-4.5
Carl Zeiss T* DT Digital Lens

- *Designed exclusively for Digital SLRs*
- Ideal for snapshots, portraits, interiors, or outdoor scenery
- 35mm equiv: 24-120mm
- Min. focus: 13.8"
- 62mm filter diameter
- Weight: 15.5 oz

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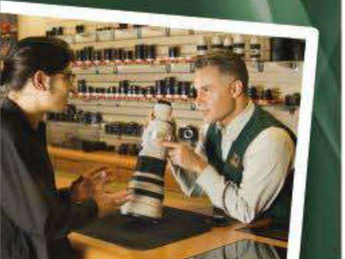

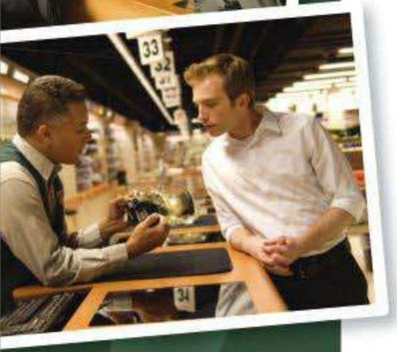

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Canon Digital Rebel T3 DSLR

- 2.7" Clear View LCD with Live View Function
- Uses Canon EF Lenses (1.6x factor)
- SDHC/SDXC Card Slot
- 3 fps Continuous Shooting
- ISO 100-6400
- Full HD Movie Mode
- RAW + JPEG Files
- Basic + Function / Creative Auto
- 63 Zone Dual-Layer System/9 Point AF

Kit with 18-55mm IS	*#CAEDRT3K*

12 Mega Pixels

Canon Digital Rebel T3i DSLR

- 3" Clear View Vari-Angle LCD
- Uses Canon EF Lenses (1.6x factor)
- SDHC/SDXC Card Slot
- 3.7 fps Continuous Shooting
- ISO 100-6400
- RAW + JPEG Files
- Full HD Movie Mode with Manual Exposure
- 63 Zone Dual-Layer System/9 Point AF

Body Only	*#CAEDRT3I*
Kit with 18-55mm IS	*#CAEDRT3IK*

18 Mega Pixels

Canon EOS-60D DSLR

- 1920 x 1080 HD Video Capture
- DIGIC 4 Image Processor
- SD/SDHC/SDXC Card Slot
- Works with all Canon EF & EF-S Lenses
- Vari-Angle Clear View 3.0" Flip-Out LCD
- HDMI Output to HDTV
- 5.3 fps Continuous Shooting
- ISO 6400 - Expandable to 12800

Body Only	*#CAE60D*
Kit with 18-135mm IS	*#CAE60D18135*
Kit with 18-200mm IS	*#CAE60D18200*

18 Mega Pixels

Canon EOS-5D Mark II DSLR

- Record HD Video
- 1080p Movie Mode
- Full-Frame Sensor
- Live View Mode
- 3" High Resolution LCD Screen
- Uses Canon EF Lenses
- CF, MD Card Slot
- Dust and Weather Resistant
- Self-Cleaning Sensor
- 3.9 fps Burst Mode
- 9-point AF Sensor Array
- ISO Range 50-25600

Body Only	*#CAE5D2*
Kit with 24-105mm IS	*#CAE5D224105*

21 Mega Pixels

Canon EOS-7D DSLR

- Record HD Video
- 3" LCD
- Uses Canon EF Lenses
- CF, MD Card Slot
- Dust and Weather Resistant
- Selectable Video Exposure and Frame Rates
- ISO 100-6400 (expandable to 12800)
- 8 fps Burst Mode
- 19-Point, All Cross-Type AF System

Body Only	*#CAE7D*
Kit with 18-135mm IS	*#CAE7D18135*
Kit with 28-135mm IS	*#CAE7D28135*

18 Mega Pixels

Canon EOS-1D Mark IV DSLR

- HD Video Recording
- Selectable Video Exposure + Frame Rates
- Self-Cleaning Sensor
- 3" LCD Monitor
- Uses Canon EF Lenses
- SD/SDHC & CF card slots
- 10 fps Burst Mode
- Dust and Weather Resistant
- 45 Point AF System
- High Sensitivity (ISO 102,400)

Body Only	*#CAE1D4**

16 Mega Pixels

Canon SLR Lenses and Flashes

Instant Rebates! Expire 11-23-11

EOS Flash System (USA)

270EX	
270EX II	**$159.99***
320EX	**$234.99***
430EX II	**$279.99***
580EX II	**$469.99***
MR-14EX Ringlight	**$519.99***
MT-24EX Twin Flash	**$789.99***

EF-S Lenses for Digital Only (USA)

(Not compatible with full frame cameras)

60/2.8 USM Macro (52ø)	**$429.99***
10-22/3.5-4.5 USM (77ø)	
15-85/3.5-5.6 IS USM (72ø)	**$734.99***
17-55/2.8 IS USM (67ø)	**$1,099.00***
17-85/4-5.6 IS USM (67ø)	
18-55/3.5-5.6 IS (58ø)	
18-135/3.5-5.6 IS (67ø)	
18-200/3.5-5.6 IS (72ø)	
55-250/4.0-5.6 IS USM (58ø)	

EF Lenses (USA)

15/2.8	
20/2.8 USM (72ø)	
24/2.8 (58ø)	
28/2.8 (52ø)	
28/1.8 USM (58ø)	
35/2 (52ø)	

* Price After Rebate

EF Lenses (USA)

50/1.8 (52ø)	**$115.99***
50/2.5 Macro (52ø)	
50/1.4 USM (58ø)	
MP-E 65/2.8 1x-5x Macro (58ø)	
85/1.8 USM (58ø)	
100/2 USM (58ø)	**$464.99***
100/2.8 USM Macro (58ø)	**$559.99***
135/2.8 (52ø)	
28-135/3.5-5.6 IS USM (72ø)	
70-300/4-5.6 IS USM (58ø)	
70-300/4.5-5.6 DO IS USM (58ø)	**$1,309.00***
75-300/4.0-5.6 III (58ø)	
75-300/4.0-5.6 III USM (58ø)	

TS-E MF Lenses (USA)

17/4.0 "L"	**$2,329.00***
24/3.5 "L" II	**$2,049.00***
45/2.8	
90/2.8	

EF "L" Lenses (USA)

14/2.8 USM II	**$2,199.00***
24/1.4 II (77ø)	
35/1.4 USM (72ø)	
50/1.2 USM (72ø)	
85/1.2 USM II (72ø)	**$2,049.00***
100/2.8 IS USM Macro (67ø)	**$979.00***

* Price After Rebate

EF "L" Lenses (USA)

135/2.0 USM (72ø)	**$1,014.00***
180/3.5 USM Macro (72ø)	**$1,469.00***
200/2.8 USM II (72ø)	
200/2.0 IS USM (52ø)	
300/4.0 IS USM (77ø)	
300/2.8 IS USM II (52ø rear)	
400/5.6 USM (77ø)	
400/2.8 IS II (52ø rear)	
500/4 IS USM (52ø rear)	
600/4.0 IS (52ø rear)	
8-15/4.0 Fish-eye USM	
16-35/2.8 USM II (82ø)	
17-40/4.0 USM (77ø)	
24-70/2.8 USM (77ø)	
24-105/4 IS USM (77ø)	
28-300/3.5-5.6 IS USM (77ø)	
70-200/4.0 USM (67ø)	
70-200/4.0 IS USM (77ø)	**$1,249.00***
70-200/2.8 USM (77ø)	
70-200/2.8 IS II USM (77ø)	
70-300/4.0-5.6 IS USM (67ø)	**$1,499.00***
100-400/4.5-5.6 IS USM (77ø)	
1.4x II Teleconverter	
1.4x III Teleconverter	
2x II Teleconverter	
2x III Teleconverter	

* Price After Rebate

NEW

Canon Instant Rebates on Lenses and Speedlites

Effective 10-23-11 Through 11-23-11

EOS Flash System	Price	Rebate	Final
270EX II	$169.99	**$10**	**$159.99**
320EX	$249.99	**$15**	**$234.99**
430EX II	$299.99	**$20**	**$279.99**
580EX II	$499.99	**$30**	**$469.99**
MR-14 EX Ring Flash	$549.99	**$30**	**$519.99**
MT-24 EX Twin Flash	$829.99	**$40**	**$789.99**

EF-S Digital Lenses	Price	Rebate	Final
60/2.8 USM Macro	$469.99	**$40**	**$429.99**
15-85/3.5-5.6 IS USM	$799.99	**$65**	**$734.99**
17-55/2.8 IS USM	$1,179.00	**$80**	**$1,099.00**

EF Lenses	Price	Rebate	Final
50/1.8 II	$125.99	**$10**	**$115.99**
100/2 USM	$499.99	**$35**	**$464.99**
100/2.8 USM Macro	$599.99	**$40**	**$559.99**
70-300/4.5 DO IS USM	$1,399.00	**$90**	**$1,309.00**

EF "L" Lenses	Price	Rebate	Final
14/2.8 USM II	$2,359.00	**$160**	**$2,199.00**
85/1.2 USM II	$2,199.00	**$150**	**$2,049.00**
100/2.8 IS USM Macro	$1,049.00	**$70**	**$979.00**
135/2.0 USM	$1,089.00	**$75**	**$1,014.00**
180/3.5 USM Macro	$1,579.00	**$110**	**$1,469.00**
70-200/4.0 IS USM	$1,349.00	**$100**	**$1,249.00**
70-300/4-5.6 IS USM	$1,599.00	**$100**	**$1,499.00**

TS-E "L" MF Lenses	Price	Rebate	Final
17/4.0	$2,499.00	**$170**	**$2,329.00**
24/3.5 II	$2,199.00	**$150**	**$2,049.00**

Nikon **D3000** DSLR

- Self-Cleaning Sensor
- 3" LCD Monitor
- Accepts Nikon AF Lenses (1.5x factor)
- ISO 100-1600
- Fast Shutter Response
- SD, SDHC Card Slot
- In-camera Editing
- 3 fps Burst Mode
- 11-point Autofocus System
- Nikon Inc. limited warranty included

Kit with 18-55mm VR DX.............#NID30001855

10 Mega Pixels

Nikon **D3100** DSLR

Valid Through 11-19-11

- HD 1080p Video w/ Sound & Autofocus
- 3" LCD • Live View
- Uses Nikon AF Lenses (1.5x factor)
- SD/SDHC Card Slot
- 11-point Autofocus
- 3 Frames per Second Shooting
- ISO 100 to 3200 (Expand to 12800-Hi2)
- Self Cleaning Sensor
- Nikon Inc. limited warranty included

14 Mega Pixels

	Price	Less Rebate	Final Cost
Kit with 18-55mm VR *#NID31001855*	$649.95	-$50	$599.95

Nikon **D5100** DSLR

Valid Through 11-19-11

- 1080p HD Movies with Full Time AF
- Uses Nikon AF Lenses (1.5x factor)
- 3.0" Vari-angle LCD
- SD/SDHC Card Slot
- ISO Sensitivity 100-6400
- In-Camera Special Effects Mode
- In-Camera HDR (High Dynamic Range)
- Fast 11-Point Autofocus System
- Nikon Inc. limited warranty included

16 Mega Pixels

	Price	Less Rebate	Final Cost
Body Only *#NID5100*	$749.95	-$50	$699.95
Kit with 18-55mm VR *#NID51001855*	$849.95	-$50	$799.95

Nikon **D7000** DSLR

- EXPEED 2 Image Processor
- 1080p HD Video Capture
- RAW + JPEG Still Image Capture
- 3" LCD Monitor
- Accepts Nikon AF Lenses (1.5x factor)
- Twin SD/SDHC/SDXC Card Slots
- 39-point AF System
- RGB 3D Matrix Metering System
- i-TTL Flash + Speedlight Compatibility
- Nikon Inc. limited warranty included

Body Only #NID7000......................... **$1,199.95**

16 Mega Pixels

Nikon **D700** DSLR

- Self Cleaning Sensor • 5 fps Burst
- FX-format CMOS (full frame)
- 3" VGA LCD Monitor • Live View
- 51-point AF System
- Uses Nikon AF Lenses
- CompactFlash Card Slot
- Dust and Water Resistant
- Active D-Lighting Mode
- HDMI Video Out • ISO 6400
- Nikon Inc. limited warranty included

Body Only..#NID700
Kit with 24-120mm VR.................#NID70024120

12 Mega Pixels

Nikon **D3s** DSLR

- RAW/JPEGs & 720p HD Video @ 24fps
- FX-format (full-frame) CMOS Sensor
- In-Camera RAW Processing
- 3" 920,000-Dot LCD with Live View
- Compatible with Most Nikkor Optics
- Built Tough, Fully Weathersealed
- ISO Sensitivity up to 102,400
- Buffers Up to 48 RAW or 130 large JPEGs
- Dual CF Card Slots
- Nikon Inc. limited warranty included

Body Only...#NID3S

12 Mega Pixels

Nikon SLR Lenses and Flashes

Instant Savings! Expire 11-19-11

AF Flashes

	Price	Final Cost
SB-400		
SB-700	$329.95	—
SB-900		
R1 Wireless Twin Flash		
R1C1 Wireless Twin Flash System		

DX ED-IF Lenses for Digital Only

	Price	Final Cost
10.5/2.8 Fish-Eye		
35/1.8 G AF-S (52ø)	$199.95	—
40/2.8 G AF-S Micro (52ø)	$279.95	—
85/3.5 G ED VR Micro (52ø)		
10-24/3.5-4.5 G AF-S (77ø)		
12-24/4 G AF-S (77ø)		
16-85/3.5-5.6 G AF-S VR (67ø)		
17-55/2.8 G AF-S (77ø)		
18-55/3.5-5.6 G AF-S II (52ø)		
18-55/3.5-5.6 G AF-S VR (52ø)	$199.95	—
18-105/3.5-5.6 G AF-S VR (67ø)	$399.95	—
18-200/3.5-5.6 G AF-S VR II (72ø)	$849.95	**$599.95** [A]
55-200/4-5.6 G AF-S (67ø)		
55-200/4-5.6 G AF-S VR (67ø)	$249.95	**$149.95** [B]
55-300/4.5-5.6 G AF-S VR (58ø)	$399.95	**$249.95** [C]

D-Type AF Lenses

	Price	Final Cost
14/2.8 D ED		
16/2.8 D (39ø) with Hood		
20/2.8 D (62ø)		
24/2.8 D (52ø)		
24/1.4 G AF-S ED (77ø)		
24/3.5 D ED PC-E (77ø)		
28/2.8 D (52ø)		
35/2.0 D (52ø)		
35/1.4 G AF-S ED (67ø)		
45/2.8 D ED PC-E Micro (77ø)		
50/1.8 D (52ø)		
50/1.8 G AF-S (58ø)	$219.95	—
50/1.4 D (52ø)		
50/1.4 G AF-S (58ø)		
60/2.8 D Micro (62ø) (1:1)		
60/2.8 G AF-S ED Micro (62ø)		
85/1.8 D (62ø) with Hood		
85/1.4 D IF (77ø)		
85/1.4 G AF-S (77ø)		
85/2.8 PC-E Micro (77ø)		
105/2.8 G AF-S ED-IF VR Micro (62ø)		
105/2.0 DC D with Hood (72ø)		
180/2.8 D ED-IF (72ø)		
200/4 D ED-IF Micro w/Case (62ø)		

D-Type AF Lenses

	Price	Final Cost
200/2 G AF-S ED-IF VR (52ø)		
300/4.0 D AF-S ED-IF (77ø)		
300/2.8 G AF-S VR (52ø-R)		
400/2.8 G AF-S VR ED (52ø)		
500/4.0 G AF-S VR ED (52ø)		
600/4.0 G AF-S VR ED (52ø)		
14-24/2.8 G AF-S ED-IF	$1,999.95	**$1,599.95** [E]
16-35/4.0 G AF-S ED VR (77ø)		
17-35/2.8 D AF-S ED-IF (77ø)		
24-70/2.8 G AF-S ED-IF (77ø)	$1,889.95	**$1,589.95** [F]
24-85/2.8-4.0 D IF (72ø)		
24-120/4.0 G AF-S ED VR (77ø)	$1,299.95	**$999.95** [G]
28-300/3.5-5.6 G AF-S ED VR (77ø)		
70-200/2.8 G AF-S ED-IF VR II (77ø)	$2,399.95	**$1,999.95** [H]
70-300/4.0-5.6 G (62ø)		
70-300/4.5-5.6 G-AFS VR (67ø)	$589.95	**$389.95** [D]
80-200/2.8 D with Collar (77ø)		
80-400/4.5-5.6 D VR (77ø)		
200-400/4 G AF-S ED VR II (52ø)		
TC-14E II (1.4x) Teleconverter		
TC-17E II (1.7x) Teleconverter		
TC-20E III (2x) Teleconverter		

NEW

Nikon Promotions!

Instant Rebate/
Lens Savings

Effective 10-16-11 Through 11-19-11

Receive Instant Lens Rebate

Buy Lens [A, B, C or D] **with** D3000, D3100, D5000, D5100, D90 or D7000 **DSLR**

	Lens	Price	Rebate	Final
[A]	18-200mm f/3.5-5.6 G DX	$849.95	$250	**$599.95**
[B]	55-200mm f/4.0-5.6 G DX	$249.95	$100	**$149.95**
[C]	55-300mm f/4.5-5.6 G DX	$399.95	$150	**$249.95**
[D]	70-300mm f/4.5-5.6 G	$589.95	$200	**$389.95**

Buy Lens [E, F, G or H] **with** D7000, D300s, D700, D3s or D3x **DSLR**

	Lens	Price	Rebate	Final
[E]	14-24mm f/2.8 G	$1,999.95	$400	**$1,599.95**
[F]	24-70mm f/2.8 G	$1,889.95	$300	**$1,589.95**
[G]	24-120mm f/4.0 G	$1,299.95	$300	**$999.95**
[H]	70-200mm f/2.8 G	$2,399.95	$400	**$1,999.95**

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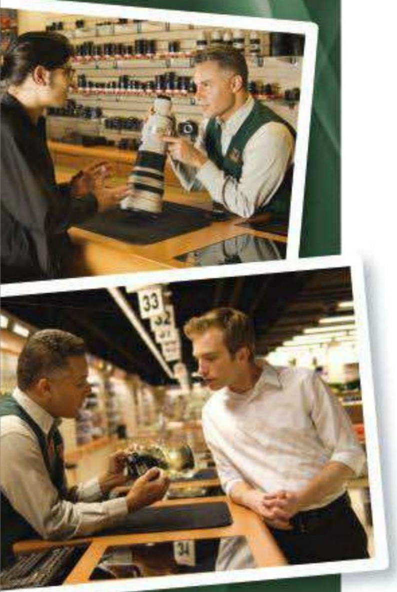

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Di – for both digital & film SLR cameras • **Di-II** – for Digital SLRs Only

C = Canon N = Nikon P = Pentax SM = Sony/Minolta *** Price After Rebate*

		SKU #	Available for	Rebate	Price
Di-II	60/2.0 LD IF Macro (55ø)	#TA602DI*	C, N, SM	**$100**	**$424.00****
Di	90/2.8 Macro (55ø)	#TA9028M*	C, N, P, SM	**$50**	**$449.00****
Di	180/3.5 LD IF Macro (72ø)	#TA18035*	C, N, SM	**$50**	**$689.00****
Di-II	10-24/3.5-4.5 (77ø)	#TA102435*	C, N, P, SM	**$50**	**$449.00****
Di-II	17-50/2.8 XR LD IF Aspherical (67ø)	#TA175028*	C, N, P, SM	**$25**	**$474.00****
Di-II	17-50/2.8 XR VC LD IF Asph. (67ø)	#TA175028*Q	C, N	**$50**	**$599.00****
Di-II	18-200/3.5-6.3 (62ø)	#TA1820035*	C, N, P, SM	**$60**	**$239.00****
Di-II	18-270/3.5-6.3 VC (72º)	#TA1827035*	N	—	**CALL**
Di-II	18-270/3.5-6.3 VC PZD (62ø)	#TA18270*	C, N	—	**$649.00**
Di	28-75/2.8 XR (67ø)	#TA287528*	C, N, P, SM	**$25**	**$474.00****
Di	28-300/3.5-6.3 XR LD (62ø)	#TA2830035XD*	C, N, P, SM	—	**$419.00**
Di	28-300/3.5-6.3 XR VC (62ø)	#TA2830035*	C, N	—	**$629.00**
Di	70-200/2.8 LD IF Macro (77ø)	#TA7020028M*	C, N, P, SM	—	**$769.00**
Di	70-300/4-5.6 VC USD	#TA70300*	C, N, SM	**$50**	**$399.00****
Di	75-300/4.0-5.6 LD (62ø)	#TA753004*	C, N, SM	—	**$164.00**
Di	200-500/5-6.3 LD IF (86Cø)	#TA2005005*	C, N, SM	—	**$949.00**
	1.4x SP AF Pro Teleconverter	#TA14XP*	C, N	—	**$224.00**
	2x SP AF Pro Teleconverter	#TA2XP*	C, N	—	**$254.00**

Tokina AF LENSES

DX – for Digital SLRs Only **FX** – Designed for full frame DSLRs

	** Also Available for Sony Alpha DSLR	Canon EOS	Nikon AF	Price
DX	35/2.8 Pro Macro (55ø)	#TO3528PDXC	#TO3528PDXN	**$299.00**
FX	100/2.8 Pro D Macro (52ø)	#TO10028PCAF	#TO10028PNAF	**$449.00**
DX	10-17/3.5-4.5 ATX Fisheye	#TO101735CAF	#TO101735NAF	**$599.95**
DX	11-16/2.8 Pro (77ø) **	#TO111628PDXC	#TO111628PDXN	**$659.95**
DX	12-24/4.0 Pro II (77ø)	#TO12244DXC	#TO12244DXN	**$549.95**
FX	16-28/2.8 Pro (77ø)	#TO162828FXC	#TO162828FXN	**$849.00**

FLASHES

Metz

28 AF-3 TTL Digital Shoe Mount Flash	**$108.00**
28 CS-2 Digital Slave Shoe Mount Flash	**$126.00**
50 AF-1 TTL Shoe Mount Flash f/Canon or Nikon	**$230.00**
54 MZ-4 TTL Standard Shoe Mount Flash	**$364.99**
58 AF-2 TTL Shoe Mount Flash f/Canon or Nikon	**$400.00**
45 CL-4 TTL Handle Mount Flash Kit**	**$699.95**
76 MZ-5 TTL Handle Mount Flash**	**$1,024.99**

** with battery and charger

QUANTUM

Q-flash TRIO	**$875.00**
Q-flash T5D-R	**$706.00**
Q-flash T5D-R with Turbo SC Battery & Charger	**$1,172.00**
Q-flash T5D-R with Turbo 3 Battery Kit	**$1,303.50**

Batteries

Battery 1 Compact	**$118.00**		
Battery 1	**$224.00**	Turbo SC	**$466.00**
Turbo Blade	**$466.00**	Turbo 3	**$624.00**

SUNPAK

E-Flash Flat Panel Kit #SUFP38	**$58.95**
018ST fits most Digital Cameras	**$29.95**
RD-2000 Shoe Mount Flash	**$64.95**
PZ-4000 AF TTL Shoe Mount f/Canon, Nikon	**$69.95**
PZ-40x II AF TTL Shoe Mount	**$69.95**
PZ-42x AF TTL Shoe Mount for Canon, Nikon	**$139.99**
622 Super Pro TTL Handle Mount Flash	**$196.95**
622 Super Kit with Wide Angle Head	**$199.95**

Vivitar

285HV Professional Auto	**$89.95**
Pearstone SB-4 AC Adapter for 285HV #PESB4	**$14.95**

SIGMA AF LENSES & FLASHES

DC – for Digital SLRs Only • **DG** – Optimized for Digital SLRs

	H – HSM Model with Canon, Nikon, Sigma **R** – Rear Slip-in Gelatin Filter Slot	Canon	Nikon	Pentax	Sigma	Sony/Minolta	Price
DC	4.5mm f/2.8 EX Circular Fisheye HSM R	#SI4528EXDCC	#SI4528EXDCN	#SI4528EXDCP	#SI4528EXDCSI	#SI4528EXDSO	**$899.00**
DG	8/3.5 EX Circular Fish-Eye R	#SI835CA	#SI835NA	—	#SI835SI	—	**$899.00**
DC	10mm f/2.8 EX Fisheye HSM R	#SI1028EXDCC	#SI1028EXDCN	#SI1028EXDCP	#SI1028EXDCSI	#SI1028EXDCSO	**$649.00**
DG	15/2.8 EX Diagonal Fish-Eye R	#SI1528DGCAF	#SI1528DGNAF	#SI1528DGPAF	#SI1528DGSA	#SI1528DGMAF	**$609.00**
DG	20/1.8 EX DF RF Aspherical (82ø)	#SI2018CAF	#SI2018NAF	#SI2018PAF	#SI2018SA	#SI2018MAF	**$629.00**
DG	24/1.8 EX DF Aspherical Macro (77ø)	#SI2418MCAF	#SI2418MNAF	#SI2418MPAF	#SI2418MSA	#SI2418MMAF	**$549.00**
DG	28/1.8 EX DF Aspherical Macro (77ø)	#SI2818MCAF	#SI2818MNAF	#SI2818MPAF	#SI2818MSA	#SI2818MMAF	**$449.00**
DC	30mm f/1.4 EX HSM (62ø)	#SI3014DCCAF	#SI3014DCNAF	#SI3014DCPAF	#SI3014DCSA	#SI3014DCMAF	**$489.00**
DG	50mm f/1.4 EX (77ø) H	#SI5014C	#SI5014N	#SI5014PE	#SI5014SI	#SI5014SOM	**$499.00**
DG	50/2.8 EX Macro (55ø)	#SI5028MDGCAF	#SI5028MDGNAF	#SI5028MDGPAF	#SI5028MDGSA	#SI5028MDGMAF	**$369.00**
DG	70/2.8 EX Macro (62ø)	#SI7028MDGCA	#SI7028MDGNA	#SI7028MDGPA	#SI7028MDGSA	#SI7028MDGSAQ	**$499.00**
DG	85/1.4 EX HSM (77ø)	#SI8514C	#SI8514N	#SI8514P	#SI8514SI	#SI8514S	**$969.00**
DG	105/2.8 EX Macro OS (62ø)	#SI10528MDGCE	#SI10528MDGNQ	—	—	#SI10528MDGSM	**$969.00**
DG	150/2.8 EX APO Macro OS HSM (72ø)	#SI15028AMOC	#SI15028AMON	#SI15028AMOP	#SI15028AMOSI	#SI15028AMOS	**$1,099.00**
DG	300/2.8 APO EX HSM	#SI30028DGCAF	#SI30028DGNAF	#SI30028DGPAF	#SI30028DGSA	#SI30028DGMAF	**$3,399.00**
DC	8-16/4.5-5.6 HSM	#SI8164556CA	#SI8164556NI	#SI8164556PE	—	#SI8164556SO	**$699.00**
DC	10-20/4-5.6 EX HSM (77ø)	#SI102045DCAF	#SI102045DNAF	#SI102045DPAF	#SI102045DSA	#SI102045DMAF	**$479.00**
DC	10-20/3.5 EX HSM (82ø)	#SI102035C	#SI102035SN	#SI102035P	#SI102035SG	#SI102035S	**$649.00**
DG	12-24/4.5-5.6 EX Aspherical HSM	#SI122445C	#SI122445N	#SI122445P	#SI122445SI	#SI122445S	**$949.00**
DC	17-50/2.8 EX OS (77ø)	#SI175028CA	#SI175028NI	#SI175028PE	—	#SI175028SO	**$669.00**
DC	17-70/2.8-4.0 OS Macro HSM (72ø)	#SI177028DCC	#SI177028DCNQ	#SI177028DCP	#SI177028DCSI	#SI177028DCSM	**$469.00**
DC	18-50/2.8-4.5 OS (67ø)	#SI185028DOC	#SI185028DON	#SI185028DOP	#SI185028DOSG	#SI185028DOS	**$199.00**
DC	18-125/3.8-5.6 OS (Optical Stabilizer) (67ø) H	#SI18125350SC	#SI18125350SN	#SI18125350SP	#SI18125350SI	#SI18125350SS	**$339.00**
DC	18-200/3.5-6.3 IF Aspherical (62ø)	#SI1820035CAF	#SI182003563N	#SI1820035PAF	#SI1820035SA	#SI1820035MAF	**$279.00**
DC	18-200/3.5-6.3 OS (Optical Stabilizer) (72ø)	#SI1820035C	#SI1820035N	—	#SI1820035S	—	**$399.00**
DC	18-250/3.5-6.3 OS HSM (72ø)	#SI1825035C	#SI1825035N	#SI1825035CP	#SI1825035S	#SI1825035CSN	**$479.00**
DG	24-70/2.8 EX IF HSM (82ø)	#SI247028C	#SI247028NF	#SI247028PS	#SI247028S	#SI247028SM	**$899.00**
DC	50-200/4-5.6 OS HSM (55ø)	#SI5020045DOC	#SI5020045DON	#SI5020045DOP	#SI5020045DSG	#SI5020045DOS	**$159.00**
DG	50-500/4.5-6.3 APO OS HSM (95ø)	#SI505004563C	#SI505004563N	#SI505004563P	#SI505004563SA	#SI505004563SM	**$1,659.00**
DG	70-200/2.8 EX Macro II HSM (77ø)	#SI7020028C	#SI7020028N	#SI7020028PSA	#SI7020028S	#SI7020028SO	**$949.00**
DG	70-200/2.8 EX OS HSM (77ø)	#SI7020028CQ	#SI7020028NI	#SI7020028P	—	#SI7020028SOQ	**$1,399.00**
DG	70-300/4-5.6 DL Macro Super II (58ø)	#SI703004SCAF	#SI70300456N	#SI703004PAF	#SI703004SA	#SI703004MAF	**$169.00**
DG	70-300/4-5.6 APO Macro Super II (58ø)	#SI703004DGCA	#SI70300456AN	#SI703004DGPA	#SI703004DGSA	#SI703004DGMA	**$239.00**
DG	70-300/4-5.6 OS (62ø)	#SI7030045C	#SI7030045N	#SI7030045P	#SI7030045S	#SI7030045SM	**$359.00**
DG	120-300/2.8 EX APO OS HSM (105ø)	#SI12030028C	#SI12030028N	#SI12030028P	#SSI12030028SA	#SI12030028S	**$3,199.00**
DG	150-500/5-6.3 APO OS HSM	#SI150500C	#SI150500N	#SI150500P	#SI150500S	#SI150500M	**$1,069.00**
DG	1.4x EX APO Tele-Converter	#SI1.4XDGCAF	#SI1.4XDGNAF	#SI1.4XDGPAF	#SI1.4XDGSA	#SI1.4XDGMAF	**$249.00**
DG	2x EX APO Tele-Converter	#SI2XDGCAF	#SI2XDGNAF	#SI2XDGPAF	#SI2XDGSA	#SI2XDGMAF	**$299.00**
DG	EF-610 ST	#SIEF610STC	#SIEF610STN	#SIEF610STP	#SIEF610STSI	#SIEF610STS	**$165.00**
DG	EF-610 Super Flash	#SIEF610C	#SIEF610N	#SIEF610P	#SIEF610SI	#SIEF610S	**$255.00**
DG	EM-140 TTL Ringlight	#SIEM140DGC	#SIEM140DGN	#SIEM140DGP	#SIEM140DGS	#SIEM140DGM	**$379.00**

SIGMA
18-200mm f/3.5-6.3 DC OS
Digital Lens

- *Designed exclusively for Digital SLRs*
- Focus 1.5' to Infinity
- Mag. ratio of 1:3.9
- 72mm filter diameter
- Weight 21.6 oz

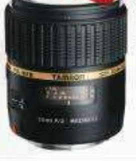
SIGMA
17-50mm f/2.8 EX DC OS
Digital Lens

- *Designed exclusively for Digital SLRs*
- Minimum focus: 11"
- Optical Image Stabilization (OS)
- 77mm filter diameter
- Weight: 19.9 oz

TAMRON
60mm f/2.0 LD IF Macro Di-II
Digital Lens

$100 Rebate

- *Designed exclusively for Digital SLRs*
- Minimum Focus 9.1'
- 55mm filter diameter
- Weight 14.1 oz



Tokina
11-16mm f/2.8 Pro DX AT-X Fisheye Digital Lens

- *Designed exclusively for Digital SLRs*
- WR (Water Repellent) coating
- Minimum Focus 1'
- Magnification ratio 1:11.6
- Weight 1.2 lb

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	52mm	58mm	67mm	72mm	77mm
UV, Skylight (1B)	$13.35	$19.95	$32.85	$34.35	$49.35
UV, Skylight (1B) HMC	$20.85	$23.85	$35.85	$43.35	$52.35
UV, Skylight (1B) Super HMC	$35.85	$44.85	$55.35	$65.85	$74.85
Linear Polarizer	$32.85	$35.85	$38.85	$44.85	$55.35
Circular Polarizer	$38.85	$43.35	$62.85	$74.85	$88.35
Circular Polarizer HMC	$77.85	$88.35	$103.35	$146.85	$179.85
"Moose" Warm Circular Polarizer	$55.35	$64.35	$92.85	$115.35	$137.85
K2 Yel, X0 Yel/Grn, Grn X1, Or G, Red 25A HMC	$25.35	$28.35	$41.85	$49.35	$61.35
Close Up Set (+1, +2, +4)	$50.85	$64.35	$77.85	$95.85	$104.85
Close-Up Set HMC (+1, +2, +4)	$65.85	$74.85	$98.85	—	—
Intensifier – Blue, Green Field, Enhancement (Red)	$44.85	$55.35	$70.35	$86.85	$104.85
Neutral Density 2x, 4x, 8x HMC	$25.35	$28.35	$41.85	$49.35	$61.35
Star 6, Star 8	$25.35	$28.35	$43.25	$49.35	$58.35

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Skylight (1B), UV SH-PMC	$72.99	$78.99	$103.99	$131.99	$157.99
Circular Polarizer, Slim Circular Polarizer	$115.99	$121.99	$151.99	$180.99	$195.99
Circular Polarizer SH-PMC, Slim Circ. Pol. SH-PMC	$161.99	$171.99	$214.99	$242.99	$275.99
#5, #8, #11, #13, #15, #22, 81A, 81B, 81C	$49.99	$51.99	$78.99	$96.99	$108.99
Digital Filter	$176.99	$180.99	$222.99	$261.99	$301.99

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UV Multi-Coated	$38.50	$38.50	$52.00	$64.50	$88.00
Circular Polarizer	$63.00	$65.00	$81.50	$93.50	$105.00
Circular Polarizer Multi-Coated	$90.00	$93.50	$117.00	$134.50	$160.50
81A, B, KR3, 6, 12, 15	$26.50	$26.50	$36.00	$42.00	$49.00
KB1.5, 3, 6, 12, 15, 20	$28.50	$28.50	$35.00	$40.50	$47.50
#021, 023, 041, 060, 061, 090	$24.50	$24.50	$36.00	$42.00	$49.00
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ND .9, 1.8, 3.0, 4.0, 6.0	$42.00	$42.00	$67.50	$84.00	$94.50
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Coolpix P7000

High Performance. Creative Control. Outstanding Images

The Nikon COOLPIX P7000 is a compact, high-performance camera featuring a 10MP large 1/1.7-inch CCD sensor 7.1x Wide-Angle Optical Zoom, HD (720p) Movie with Stereo, Mic Input Jack and HDMI Output. And a host of other features. Tthe P7000 is designed for no-limits shooting handling low-light or tricky light, fast-moving subjects, dramatic landscapes and detailed close-ups with ease.

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Coolpix S8100

Fast. Powerful. Versatile

The Nikon COOLPIX S8100 combines 12.1-megapixels with a 10X wide Zoom-NIKKOR ED glass lens, covering 30-300mm. The S8100 also offers optical VR Image Stabilization, high ISO sensitivity to 3200, and a new flash control system. Motion Detection automatically detects moving subjects and adjusts shutter speed and ISO to compensate for camera shake and subject movement.

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D3100

Beautiful Pictures. Amazing Movies. Incredibly Easy.

The 14.2-megapixel D3100 has powerful features, such as the enhanced Guide Mode that makes it easy to unleash creative potential and capture memories with still images and full HD video. It is also the world's first D-SLR to introduce full time auto focus (AF) in Live View and D-Movie mode to effortlessly achieve the critical focus needed when shooting Full HD 1080p video.

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D5100

Creativity from Any Point of View

The 16MP NIKON D5100 offers a host of new photographic and video tools that deliver superior performance and exceptional image quality with surprising versatility. With a swivel Vari-Angle LCD monitor, full HD movie capabilities, new EFFECTS Mode and new HDR setting, you hold the power and performance to capture beautiful moments and the freedom to get creative.

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D7000

Power to Astonish. Features to Inspire

The D7000 Offers Creative Freedom with Advanced Features Such as a New 16.2-Megapixel DX-Format CMOS Sensor, Six FPS Shooting, and more. The new EXPEED 2 TM image-processing engine fuels the enhanced performance of the D7000 along with a new 39-point AF system and groundbreaking new 2,016 pixel RGB 3D Matrix Metering System to deliver amazing image quality in a variety of shooting conditions. Additionally, the D7000 D-SLR provides full 1080p HD movie capability with full-time auto focus (AF)images.

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Digital SLR's

Canon

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The REBEL on the Move

The next in a long line of phenomenal compact DSLRs, the EOS Rebel T3i continues the Rebel tradition of easy operation, compact design and no-compromise performance. It features the newest DIGIC 4 Image Processor and an 18.0 Megapixel CMOS Image Sensor - plus cutting-edge technologies like Full HD video recording, Live View shooting, Wireless flash photography and even a Vari-angle 3.0-inch LCD monitor.

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TAMRON

AF18-270mm F/3.5-6.3 Di II VC (Vibration Compensation) LD Aspherical (IF) Macro

The Longest Steadiest Lens on Earth

The AF 18-270 covers an angle of view equivalent to that of a 28mm wideangle to a 419mm ultra telephoto with just one lens, letting the user capture once-in-the-lifetime images of panoramic landscape images or close-up pictures of children smiling, without having to get too close to the subject and without having to change lenses.

Camcorders

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Vixia HF M400

A brilliant blend of capability and convenience.

The VIXIA HF M400 Flash Memory Camcorder features dual SDXC-compatible memory card slots, a Genuine Canon 10x HD Video Lens and new HD CMOS Pro Image Sensor. Other sophisticated features include Smart Auto, Touch & Track, Cinema-Look Filters, Story Creator, Touch Decoration and a new high-quality internal microphone.

Vixia HF R21

HD Dual Flash Memory Camcorder

The VIXIA HF R21 has a 32GB internal flash drive, together with two SDXC-compatible memory card slots, Canon's Relay Recording, a 3" Touch Panel LCD and Smart Auto. Its Genuine Canon HD Video Lens with 28x Advanced Zoom and Dynamic IS work in combination with Canon's Full HD CMOS Image Processor to deliver the crisp, lifelike video your HDTV demands.

Vixia HF G10

A Video Enthusiast's Dream

Canon's flagship, the VIXIA HF G10 incorporates a 32GB internal flash drive, dual SDXC-compatible card slots, Canon's 10x HD Video Lens with an 8-blade iris and a dedicated manual focus ring for enhanced control. The HF G10 also features Canon's HD CMOS Pro Image Sensor, a 3.5" Touch Panel LCD, Native 24p recording, Cinema-Look Filters, full manual control and more.

Vixia HF S30

Shoot. Capture. See. Be HD.

The VIXIA HF S30 Flash Memory Camcorder boasts a sophisticated feature set, with a 32GB internal flash drive and two SDXC-compatible SD memory card slots. It truly blurs the line between consumer and professional. Canon's superlative proprietary imaging technologies help deliver video and 8.0-megapixel photos with incredible detail and lifelike color.

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D5100

Creativity from any point of view

The Nikon D5100 offers a host of new photographic and video tools including a 16.2 MP DX-format CMOS sensor, 4 fps continuous shooting and breathtaking Full 1080p HD Movies with full time autofocus.

- 16.2 megapixels
- 3.0" Vari-angle LCD Monitor
- New Effects mode

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D3100™

Beautiful Pictures, Amazing Movies

The Nikon D3100 provides an easy-to-use and affordable entrance to Nikon D-SLR's. The 14.2 MP D3100 has powerful features, such as the Guide Mode that makes it easy to unleash creative potential still images and full HD video.

- 14.2 megapixels
- 3.0" Live View Touch LCD
- Full-HD 1080p Movie Mode

Nikon D3100 Kit w/ 18-55mm DX VR Lens 649^{95} Free Shipping

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Step up to Extraordinary.

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- 14x Optical Zoom
- 3.0" LCD Display

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- 16.0 megapixels
- Water-proof, shock-proof and freeze-proof
- Full-HD 1080p Movie Mode

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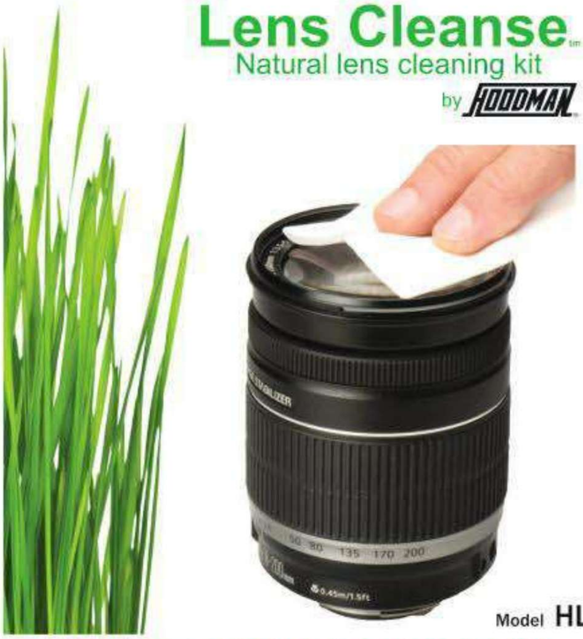

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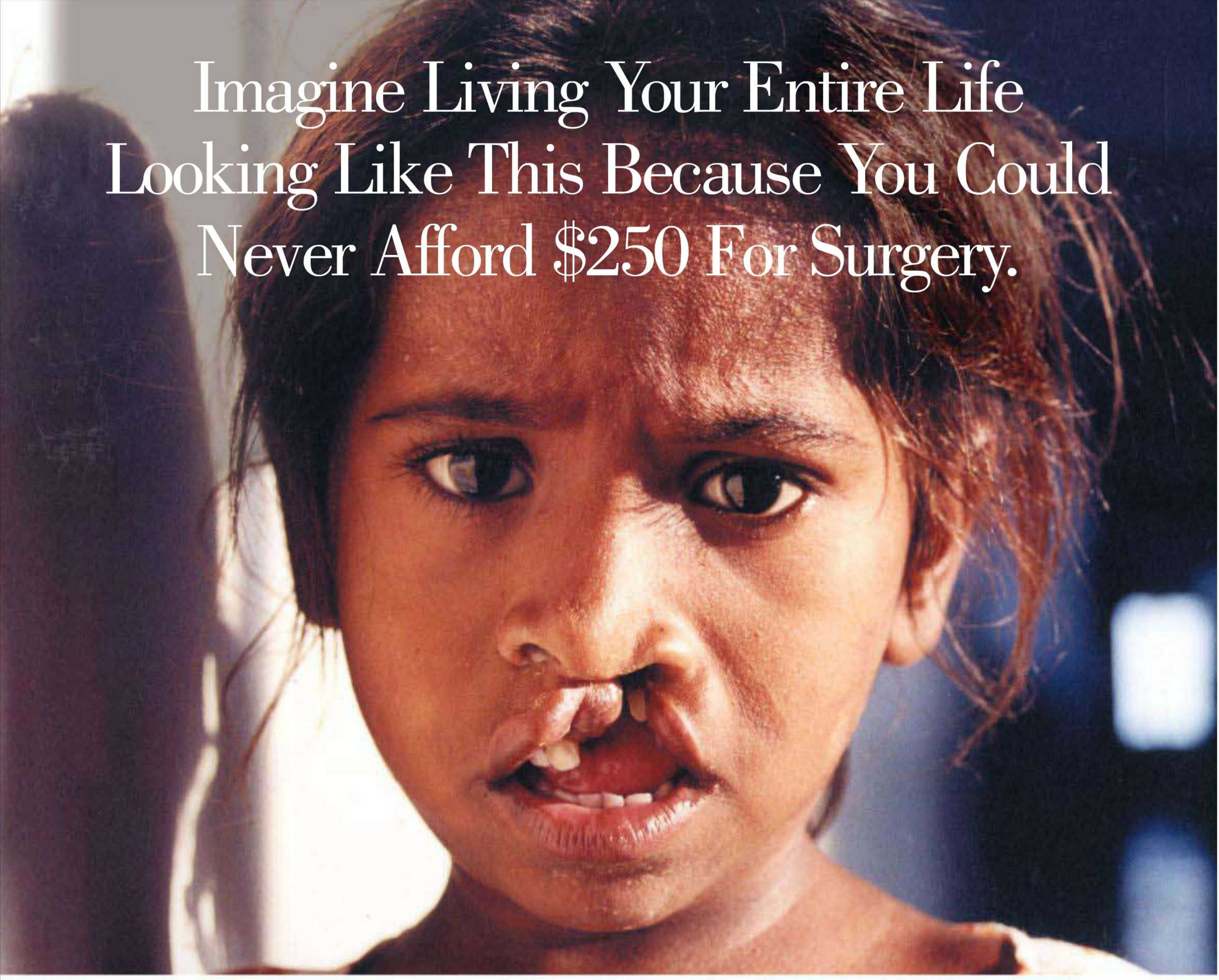
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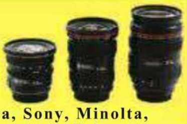

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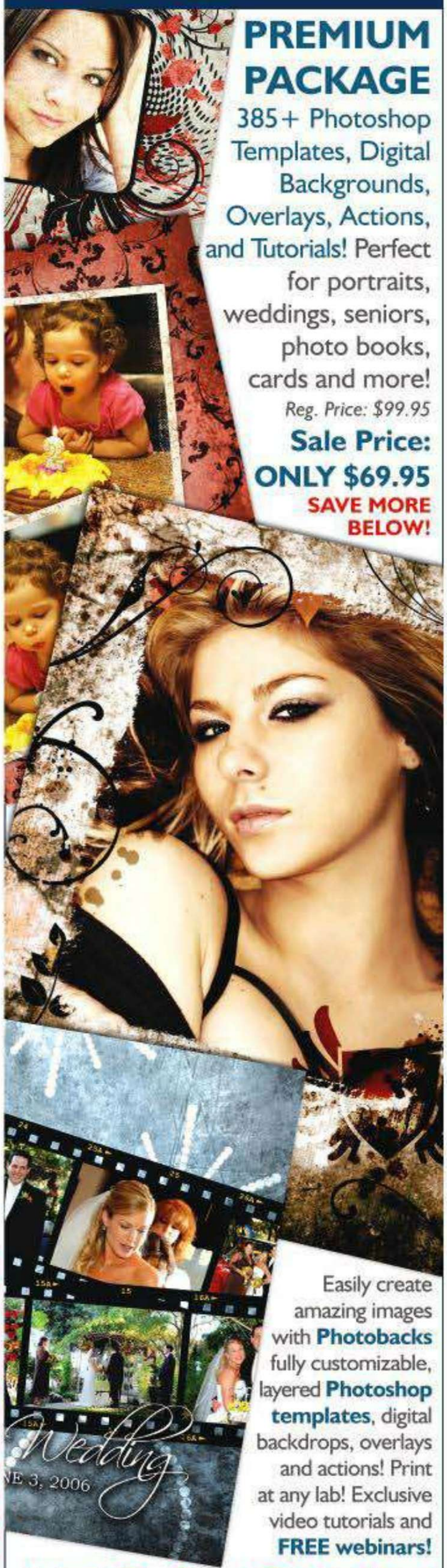

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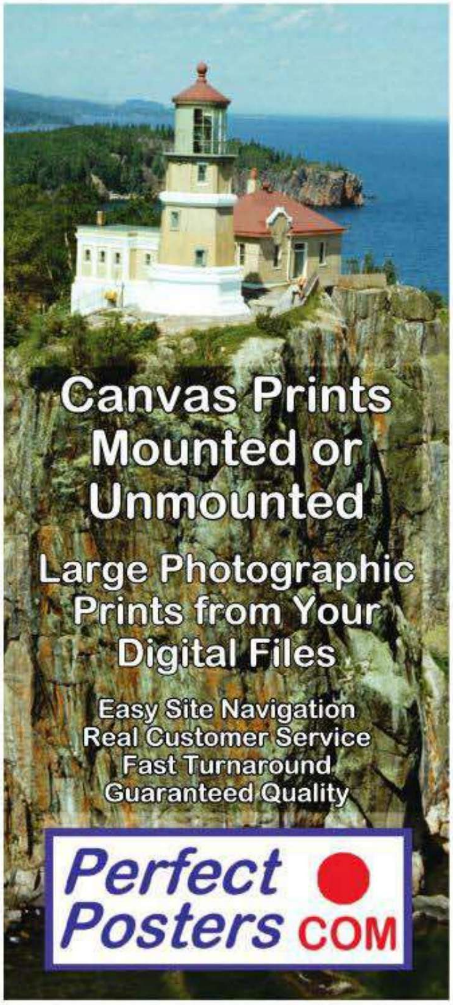

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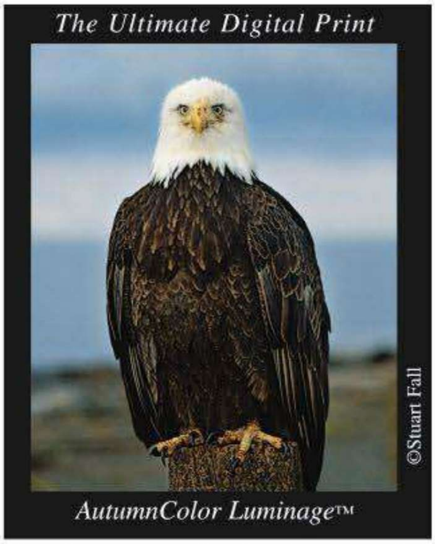

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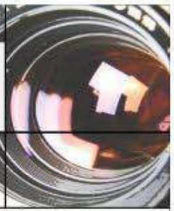

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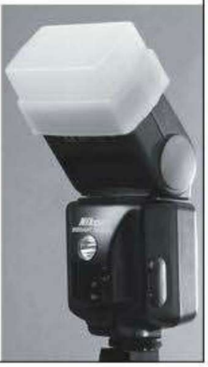

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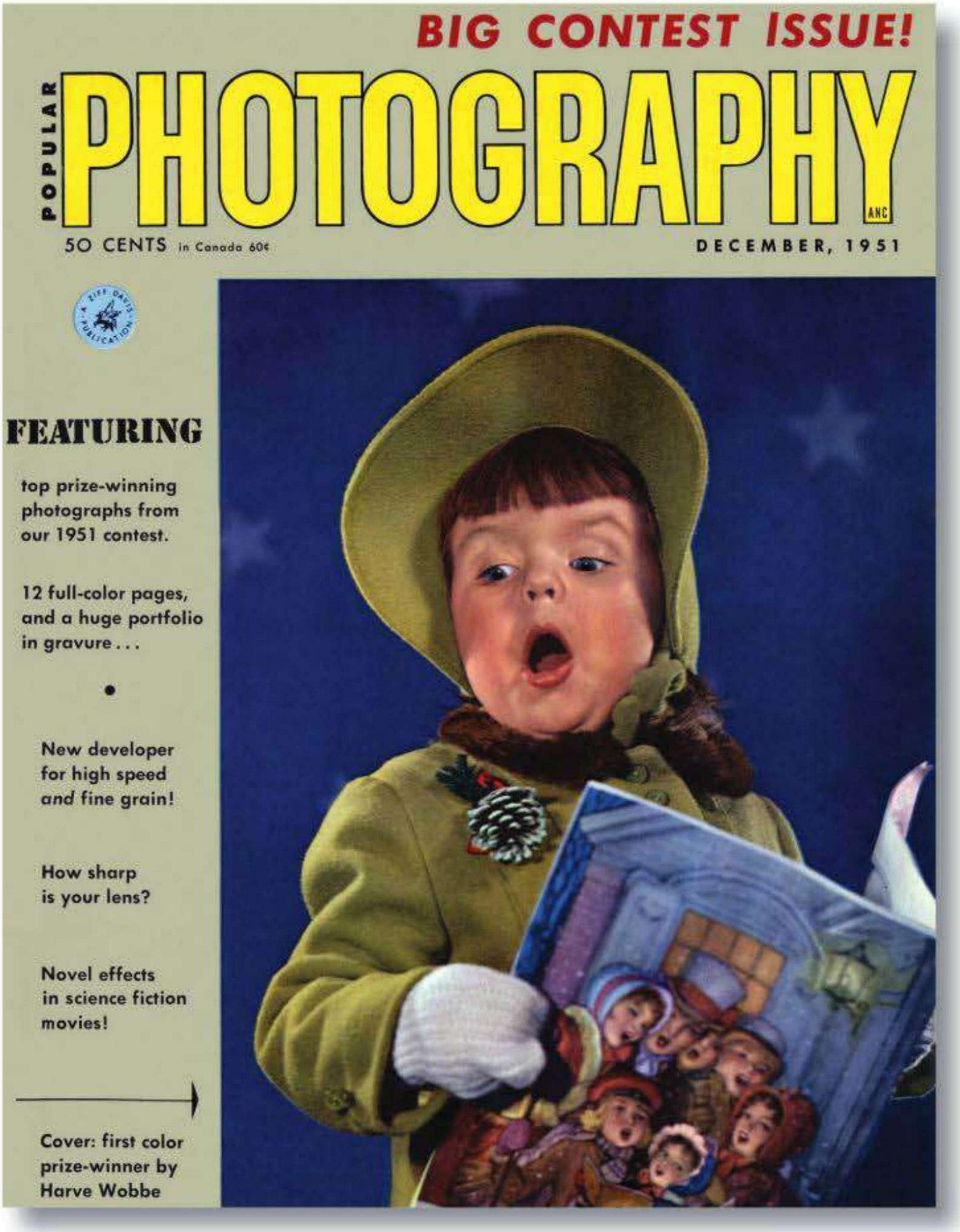
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Cover: first color prize-winner by Harve Wobbe

▲ Winning Picture

This charming cover celebrated two major December events, Christmas and our contest issue, in which this photo won first prize for color. The subject? Tobi Sue, daughter of photographer Harve Wobbe of West Orange, NJ. She was singing "Silent Night" when captured by her father's 4x5 Graphic View camera and 8-inch f/4.5 Zeiss Tessar lens. Four Press 40 flashbulbs supplied the lighting. The exposure, on Kodachrome Type B film, was 1/100 sec at f/16. Wobbe's prize, a $2,000 U.S. Savings Bond, helped brighten the holiday season.

60 YEARS AGO

We ran a story by Bradley Smith on how he shot portraits of Helen Keller.

▼ Top B&W Photo

David M. Stanley's photograph, "Ring-Bills at Gull Island," won him a $2,000 savings bond and first prize in the black-and-white division of our contest. He shot it on Mohawk Island, Lake Erie, using a Kodak Medalist II with 100mm f/3.5 Kodak Ektar lens on Super XX film. A 1/400 sec shutter speed stopped the motion of the birds' wings. A medium-yellow (K-2) filter helped darken the sky.

▲ Sea Power

"Salvo" captures the power of a battleship's big guns as the U.S.S. Missouri fires a salvo off Guantanamo Bay, Cuba. The photographer, Alvin S. Glazier, was a midshipman at the United States Naval Academy. He used a Kodak Retina and 50mm f/3.5 Schneider Xenar lens with Kodachrome film. The exposure: 1/250 sec at f/11. This picture was one of 50 b&w winners that earned $100 savings bonds.

▶ Movies for the Masses

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One way of promoting home movies is to make cameras better while charging less. Bell & Howell took this approach with its new 8mm 134W (the W stands for "wonderful," according to the advertising copywriter). Features included an f/2.5 coated lens, four filming speeds, a 5-foot film run, an interchangeable lens mount and, not least, an attractive $80 price.

—Harold Martin

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SIGMA 18–50MM F/2.8–4.5 DC OS HSM

CONTINUED FROM PAGE 100

In distortion control, the Sigma showed noticeably less barreling at 18mm (0.34%) than its three competitors. Unfortunately, its 0.17% pincushion distortion in the mid-range focal lengths wasn't up to the Canon, Nikon, and Pentax's better-than-pro-glass 0.02% (Imperceptible) pincushioning.

Other unimpressive optical scores: The Sigma's maximum subject reproduction ratio came in at a ho-hum 1:4.23, which compared unfavorably to the Nikon's 1:2.48 and Pentax's 1:2.59. Only in light falloff did the advantage swing back to our Sigma, which eliminated vignetting by f/4 at 18mm, compared with the Canon's f/8 and Pentax's dismal f/10.

So should you step up to this step-up zoom? While the Sigma's f/2.8 maximum aperture might seem impressive, it's not constant. By (approximately) 20mm, it is already at f/3.2, very close to the f/3.5 of the Canon, Nikon, and Pentax lenses. Still, f/2.8, even if it's only available at 18mm, is, well, f/2.8. *—Julia Silber*

SUBJECTIVE QUALITY FACTOR

Our standard lens test, SQF rates sharpness by print size

18 MM

Size	5x7	8x10	11x14	16x20	20x24
2.8	96.5	95.4	92.8	87.9	81.9
4.0	96.4	95.3	92.7	87.7	81.6
5.6	96.2	95.0	92.2	86.6	79.7
8.0	95.9	94.7	91.7	85.5	77.8
11.0	95.5	94.1	90.8	83.6	74.7
16.0	95.4	94.0	90.6	83.4	74.4
22.0	95.2	93.8	90.3	83.0	73.9

28 MM

Size	5x7	8x10	11x14	16x20	20x24
3.5	95.9	94.7	91.7	85.8	78.7
5.6	96.6	95.6	93.2	89.2	84.5
8.0	96.4	95.3	92.8	88.3	83.1
11.0	96.0	94.7	91.8	86.4	79.8
16.0	95.6	94.3	91.1	84.9	77.4
22.0	95.1	93.5	89.9	82.6	73.7
29.0	94.7	93.1	89.2	81.3	71.5

50 MM

Size	5x7	8x10	11x14	16x20	20x24
4.5	95.9	94.6	91.7	86.2	79.7
8.0	96.3	95.2	92.6	88.2	83.1
11.0	96.4	95.2	92.7	88.2	83.0
16.0	96.2	95.1	92.4	87.8	82.4
22.0	95.8	94.2	91.0	85.2	78.3
32.0	94.6	93.0	89.1	81.2	71.7
36.0	94.3	92.6	88.4	79.8	69.1

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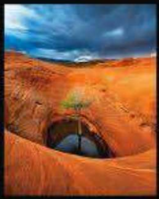

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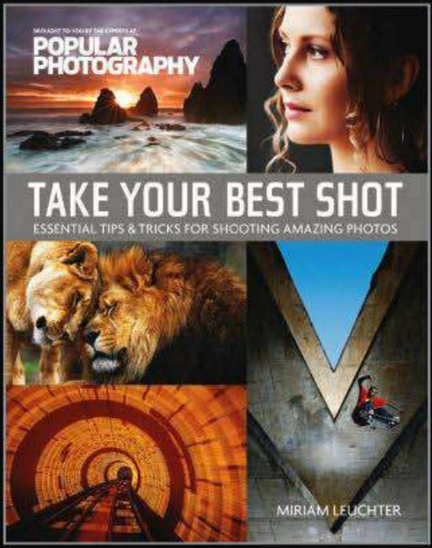

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CONTINUED FROM PAGE 94

the case with this lens, whose shallow depth of field at f/1.4 lets you draw attention to a sharp subject by drastically defocusing other parts of the scene. The effect is as rare as it is instantly recognizable.

While lacking autofocus, our Canon-mount lens coupled electronically with our full-frame test camera's autoexposure system, allowing full metering, all AE modes, and focus confirmation. Used on an APS-C body, it becomes equivalent to a classic normal lens (56mm on a Canon), producing little or no apparent perspective distortion across the focusing range.

At nearly 2 pounds, with an all-metal barrel, chassis, and hood, the lens is large and heavy by 35mm standards, but the robust construction quality guarantees an heirloom instrument. The manual-focus ring, partially ribbed, runs more than half the length of the lens—when you reach up to manually focus, you can't miss it—and turns with a luxurious smoothness, thanks to a finely machined focusing helical. The focus control is extremely fine, due to the collar's long 150-degree turning radius.

On our optical bench in the Popular Photography Test Lab, the lens produced Excellent-range sharpness and contrast scores, with only Slight barrel distortion (0.22%)—a top-notch performance for a 35mm. For evidence, see the recently tested 35mm f/1.4s from Rokinon (0.28%) and Nikon (0.26%). Edge vignetting departed the corners by f/2.5, matching the Nikon and beating the Rokinon (f/4).

If you typically photograph fast-moving, active subjects, you need autofocus. (If f/1.4 is your reason for considering this lens, be forewarned that it's difficult to nail even slow-moving subjects consistently sharp at that aperture.) Likewise, if you're not willing to obsess a bit over manual focusing, stick to AF lenses. At f/1.4, depth of field at near and middle distances is shallow enough that meticulous attention to focus—if not a viewfinder magnifier—is required. If you don't have the patience, there's no point in paying for f/1.4, because you're not going to get adequately sharp subjects at that aperture. Get a slower lens, such as the Zeiss 35mm f/2 ($1,117, street).

Another consideration: Although Zeiss promotes this lens for video because of its smooth and silent focusing, in shooting clips we found it difficult to keep the eyes of a relatively motionless adult in sharp focus at f/1.4 with a 4-foot subject distance.

But for still photographers who are willing to focus manually—it's easy to get accustomed to—and want to produce distinctly beautiful wide-angle images, this lens could be the vehicle. Are you bored with the pictures you're making? Rent this lens for a weekend. Its photos will remind you of what it felt like back when photography was new.

—*Julia Silber*

SUBJECTIVE QUALITY FACTOR

Our standard lens test, SQF rates sharpness by print size

35 MM

Size	5x7	8x10	11x14	16x20	20x24
1.4	96.7	95.7	93.2	88.0	81.4
2.0	96.8	95.8	93.5	88.5	82.1
2.8	97.2	96.3	94.2	89.9	84.5
4.0	97.4	96.6	94.7	90.9	86.2
5.6	97.5	96.7	94.9	91.2	86.6
8.0	97.4	96.8	94.7	91.0	86.3
11.0	97.1	96.2	94.0	89.7	84.3
16.0	96.4	95.3	92.7	87.4	80.6

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CONTINUED FROM PAGE 74

to *Hang*, celebrated the snapshot with images from both pros and amateurs around the world; the small prints were attached with binder clips to the walls of New York's Ace Hotel.

Ultimately, displaying your images doesn't have to be about the latest and greatest photofinishing techniques, or being accepted into the hottest gallery; it's about the image itself. As Luden puts it, to see a photograph printed and displayed is "the pinnacle of what photography should be."

Questions to Ponder

WHEN CHOOSING A DISPLAY METHOD, HERE ARE A COUPLE OF IMPORTANT CONSIDERATIONS.

■ **DO YOUR IMAGES HAVE TO BE SHIPPED?** Plexiglas is lighter than glass and won't break during shipping. Gotham Imaging's Peter Berberian also points out that Plexi doesn't shatter if the photo falls off the wall—avoiding potential damage to valuable prints.

■ **HOW MUCH DO YOU WANT TO SPEND?** Plexiglas costs less, but it scratches more easily. Prices ramp up when moving from conventional to abrasion-free, to UV-protected, to museum-grade Plexi. Cost also plays a role in mounting material—your options, in order of descending price: aluminum, Dibond, Sintra, Gatorfoam, or foamcore. If you're hanging prints only briefly, Berberian suggests Gatorfoam or foamcore; otherwise (especially for face-mounting), use one of the others.

■ **LIVE IN A DAMP CLIMATE?** Face-mount for protection and to avoid warping. Use a sturdy back.

■ **WORKING WITH A CLIENT?** Check out Time Exposure ProSelect and ProSelect Pro (www.timeexposure.com), as well as PreeVu (www.preevu.com), which let you preview mats and frames. You can even simulate how your photos will look hanging in your client's space.

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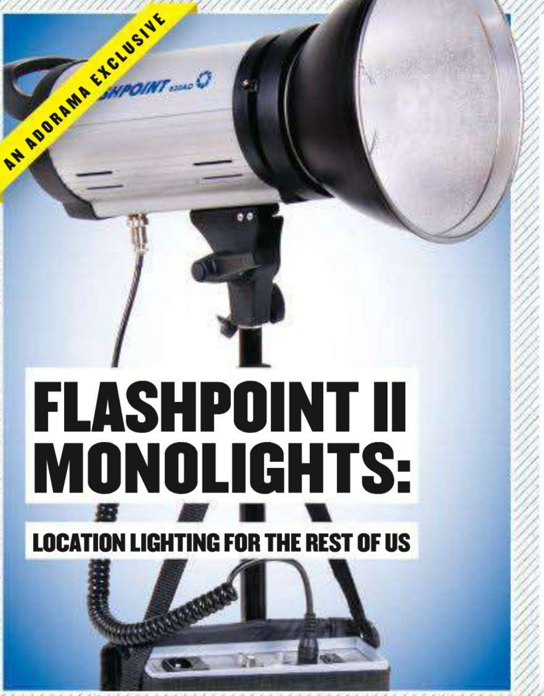

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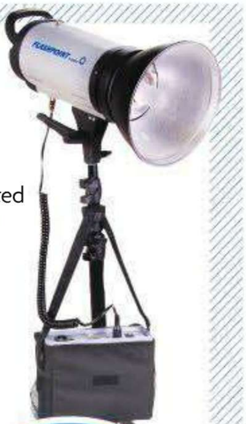

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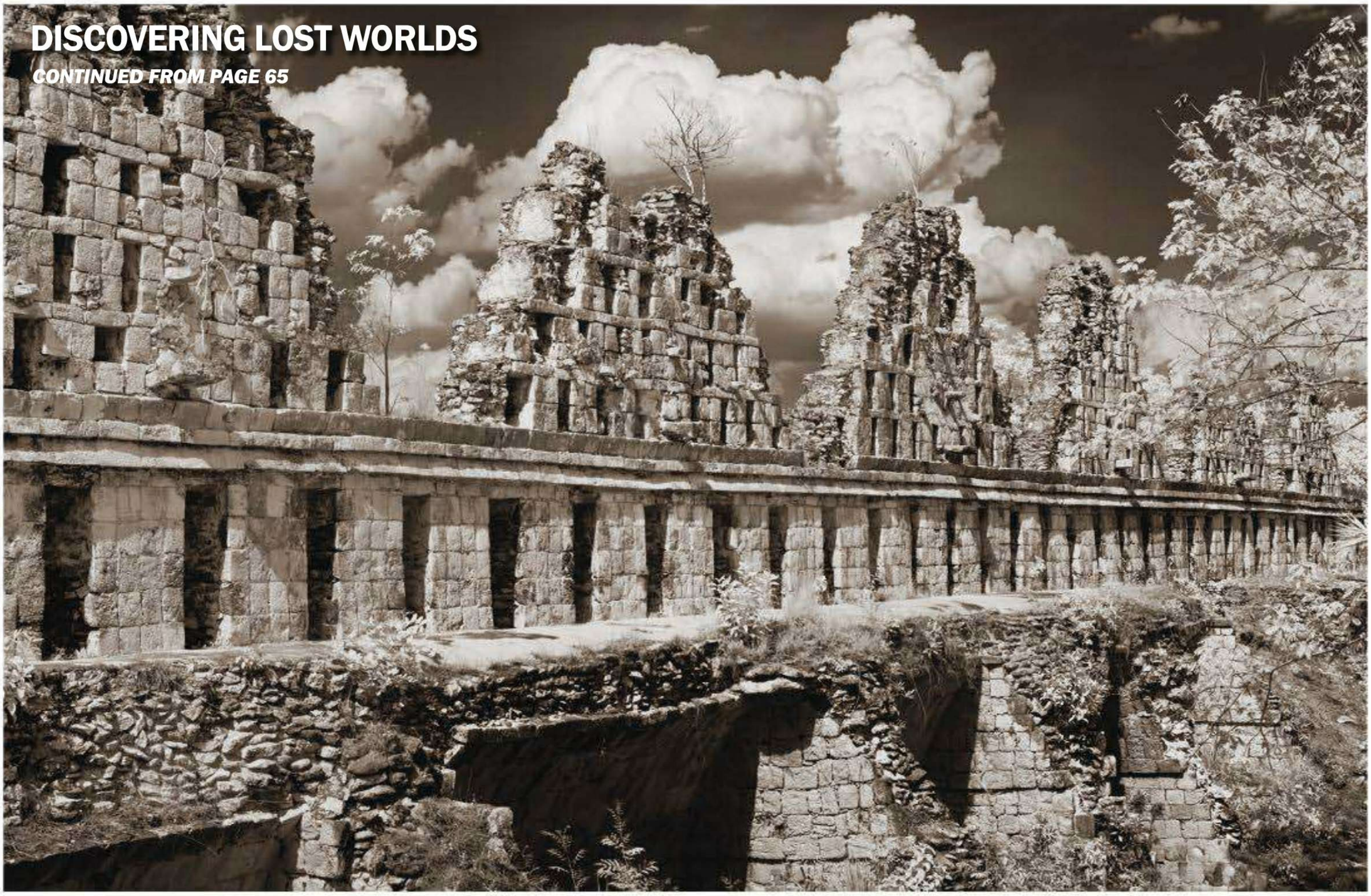

down; it's just that at some point every photographer has to put parameters around what is potentially an infinite subject. I want to photograph places that people can to go to for historical significance and emotional resonance.

DOVECOTE, UXMAL, YUCATÁN, MEXICO Drooker used his 24–70mm f/2.8L Canon EF lens to take in the sweep of this Mayan ruin. Exposure was 1/160 sec at f/11, ISO 200.

How do you work a scene?

By the time I arrive, I've already done advance research to familiarize myself with the site, and I have a pretty good idea about what to shoot and what to avoid. I typically spend about two to three days at a site to allow for changes in weather and, just as important, to get all the gee-whiz out of my system and see the ruin on a deeper level.

As soon as I arrive on location, I get my bearings and start looking for what to shoot and when. If the light is right, I'll start immediately shooting. Other times, I'll make a note to come back to a specific spot when I know the light will be better. I'm very surgical in my approach. Once I know what I'm going to shoot and when, I work it repeatedly with the intention of fine-tuning the image. This might mean waiting for a cloud to show up in a particular part of the frame, or waiting for a shadow to be just right, or waiting for the sun to dip a little lower to bring out more detail.

This project clearly took a lot of travel. How long do you stay in one area?

I made 10 trips to complete photography for *Lost Worlds*: one to Central America, two to the Caribbean, three to South America, and four to Mexico. The length of each trip varied from one to three weeks. All the travel was done over the course of about two years.

How did you find hosts, guides, and drivers?

In the case of the Caribbean locations, I received wonderful support from the tourism boards of the various island countries. They saw *Lost Worlds* as a way to boost cultural tourism, and graciously provided guides and drivers. For the other locations, I relied on a travel agent with whom I've worked for several years. Through her contacts I had wonderful guides and drivers in Mexico, Central America, and South America.

You work with R. Mac Holbert for image processing. Tell us about that.

Mac and I have worked together for 17 years. He's become a great friend and we've developed our own shorthand. Typically, I will send him a selection of RAW files and we will work remotely via iChat and screen-share. I watch him work on the files in real time, and we talk about them each step of the way. It's very much a give-and-take

More Info

A TYPICAL image edit for Drooker and Holbert (rmacholbert.com) starts with a RAW file in Adobe Lightroom 3. All color saturation is removed to eliminate the red cast of IR images. Overall brightness and contrast are set, and Enable Profile Correction is used to correct any lens distortion. The image is then exported to Adobe Photoshop CS5 where final tonal adjustments are made, and where unwanted elements are removed. Finally, the image is toned in Imagenomic's RealGrain plug-in.

collaboration. No one works curves, shadows and highlights, and midtone contrast in Photoshop better than Mac.

The toning of the images appears to be subtly different in color from picture to picture.
The toning is the same; you probably see different strengths due to varying contrast characteristics in the photo. Several years ago, Mac Holbert and I came up with what we call a recipe for toning my ruins images. I think of it as our version of sepia; it warms up the images just enough to notice and makes a subtle connection to the past.

There is an absence of people in the photos. How do you manage that?
I always go to these places at times of day when there aren't many people around. The overwhelming majority of photographs in the book were taken with no people around. And in a lot of cases, when people see you're a serious photographer, they will stop and wait for you. I've encountered that many times, and I really appreciate it. But if I'm in a situation where I've got to get the

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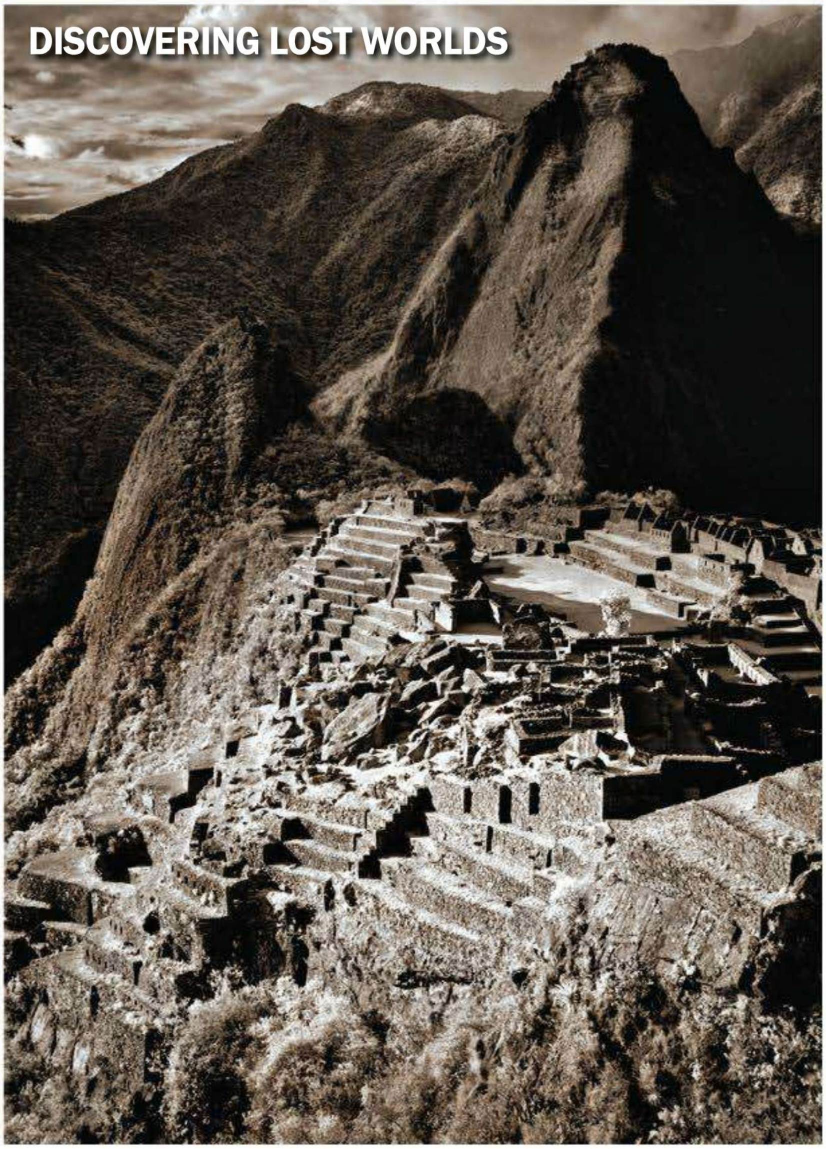

light when I can get it, I engage in depopulation in Photoshop.

You sometimes correct jagged or crooked features in Photoshop. In what situations will you do this, and to what extent?
Ruins frequently have crooked walls; combined with the distortion of a wide-angle lens, they can throw an image off balance. In these cases, we'll find a single wall to serve as our straight line and adjust or rotate the image accordingly. It usually works. Beyond that, I don't do any additional correcting.

Some purists might view this as excessive fiddling with reality.
As soon as you put the camera in your hand, you are making decisions every step of the way to manipulate the image. It's all subjective, and photographers have to decide for themselves what is "excessive fiddling." I have no problem removing litter, or an offending telephone wire, or even people from a shot, if I find them distracting from the composition in any way. I don't consider this excessive, and frankly, I don't care if others think it is.

The photos have a ghostly quality. Have you ever felt spooked on a shoot?
Not in an ooga-booga kind of way, but there have been some occasions where I've felt a presence, shall we say. Sometimes

MACHU PICCHU, PERU
Drooker used the 24–70mm f/2.8L lens for this wide view of the ancient city, shooting at 1/160 sec at f/8, ISO 200. The scene was later "depopulated" of tourists in Adobe Photoshop CS5.

I feel more connected to a particular ruin than to another. I'm not sure why that is—sometimes I feel it is more than a photographic or visual connection, more deep-seated, psychological or spiritual perhaps.

What sort of information is available on ruins around the world?

All kinds. A lot of my research began by going online and doing simple word searches, such as "Argentina ruins" and, voilà: hundreds—if not thousands—of images would appear, as well as text describing them. I also found a lot of useful information in Lonely Planet and Moon Guides, as well as a variety of books on Mayan and Incan civilizations. *Lost City of the Incas* by Hiram Bingham—the explorer credited with "discovering" Machu Picchu—was a particular favorite. Another great read is *Incidents of Travel in Central America, Chiapas and Yucatan* by John Lloyd Stephens, which is considered by many to be one of the best travel books ever written about ancient sites.

What would you suggest to readers who'd like to try ruins photography?

Go online or read books about various ruins and go to the ones that stir you emotionally. Once you're there, take your time. Really study the site. Look for great light and interesting angles. Try to see the place beyond a typical postcard view. And be patient—you'll be rewarded.

Arthur Drooker is also an Emmy Award-winning writer and director of TV documentaries. See more of his work at www.arthurdrooker.com and www.lostworldsbook.com.

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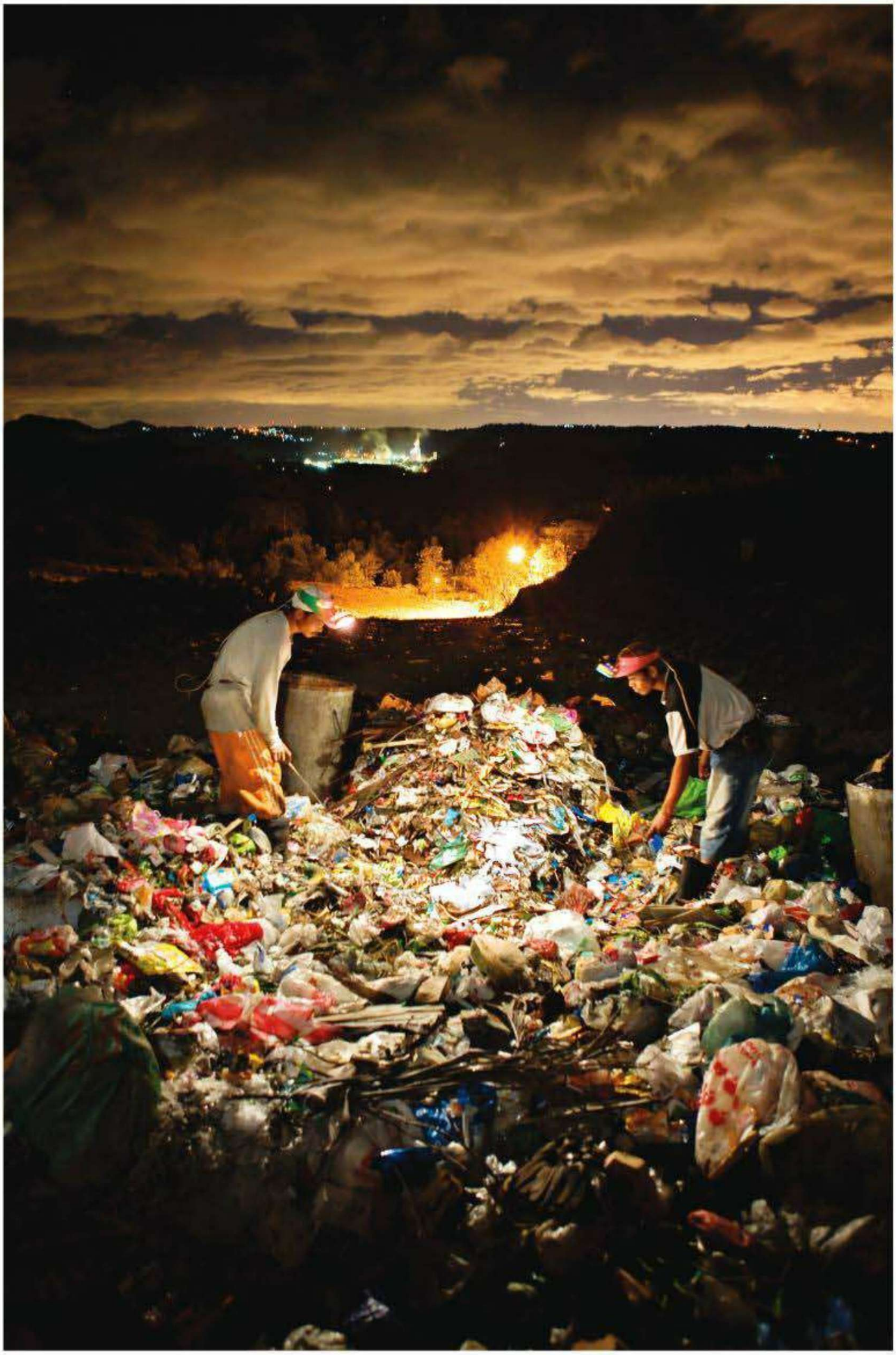
BACKSTORY

The Gleaners

Craig Pulsifer depicts men at work in Manila



CRAIG PULSIFER/AURORA PHOTOS

IN 2008, I traveled to Manila with my family and did volunteer work for Action International. One of the NGO's members was writing a story on the "Ten Worst Jobs in Manila" for a street publication called *The Jeepney*, which focuses on raising awareness for social issues in the Philippines. He asked me to shoot for the story.

One of those jobs was trash scavenging, a huge industry—these guys get a license to work on trash piles, where they hunt for items such as plastic bags and copper wires. They work at night, so arriving on location is spooky. The checkpoints were empty, and we found these two, who let us set up and photograph.

It was pitch-black, and the only light was from the security entrance and the low-watt tungsten headlamps of the two scavengers. I had only a single flash, so I had to get up to my knees in trash to set up a tripod. The pile is filled with roaches and centipedes—I could hear the ground moving. We were there for half an hour.

These guys work hard to make a dollar, so we tried not to interrupt them. But afterward we talked, and in a way it changed the story—they loved this work more than their previous jobs in construction. It allowed them to spend more time with their families, and it was closer to their homes.

More importantly, they took a lot of pride in what they do. It takes a special eye to find the valued things in a scavenge pile.

—As told to Lori Fredrickson

© Michael Nichols

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